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Figure 5-2, Unit 2 Midpoint Forecast - Total Family of Curves

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Figure 5-3. Unit 2 Midpoint Forecast - Nuclear Island Family of Curves

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Figure 5-4. Unit 2 Midpoint Forecast - Turbine Island Family of Curves

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Figure 5-5. Unit 2 Midpoint Forecast - Balance of Plant Family of Curves

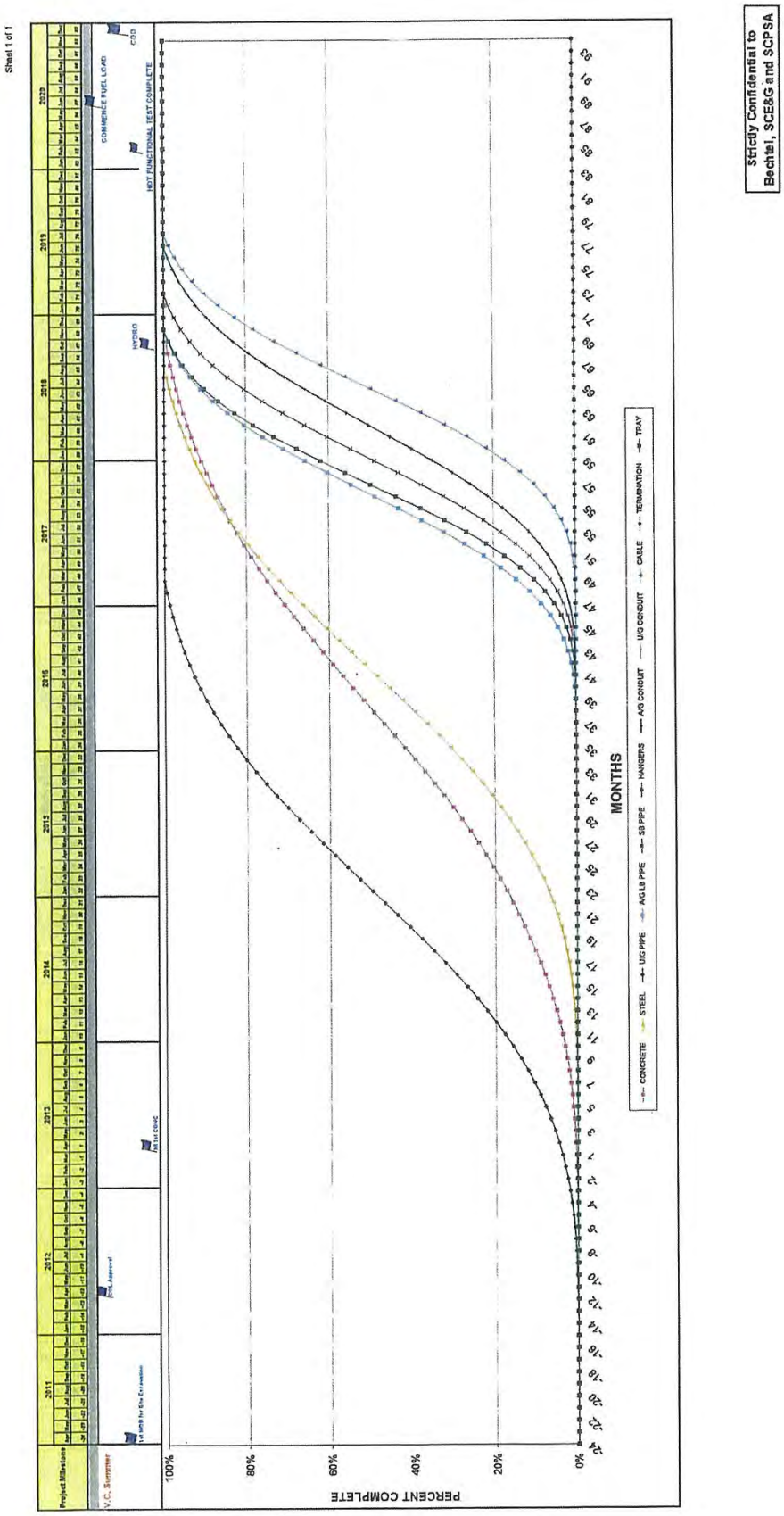

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Figure 5-6. Unit 2 Direct Craft Manpower Curve and Percent Complete Curve

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Figure 5-7. Unit 2 Headcount by Craft (Does not Incl S/C Hrs)

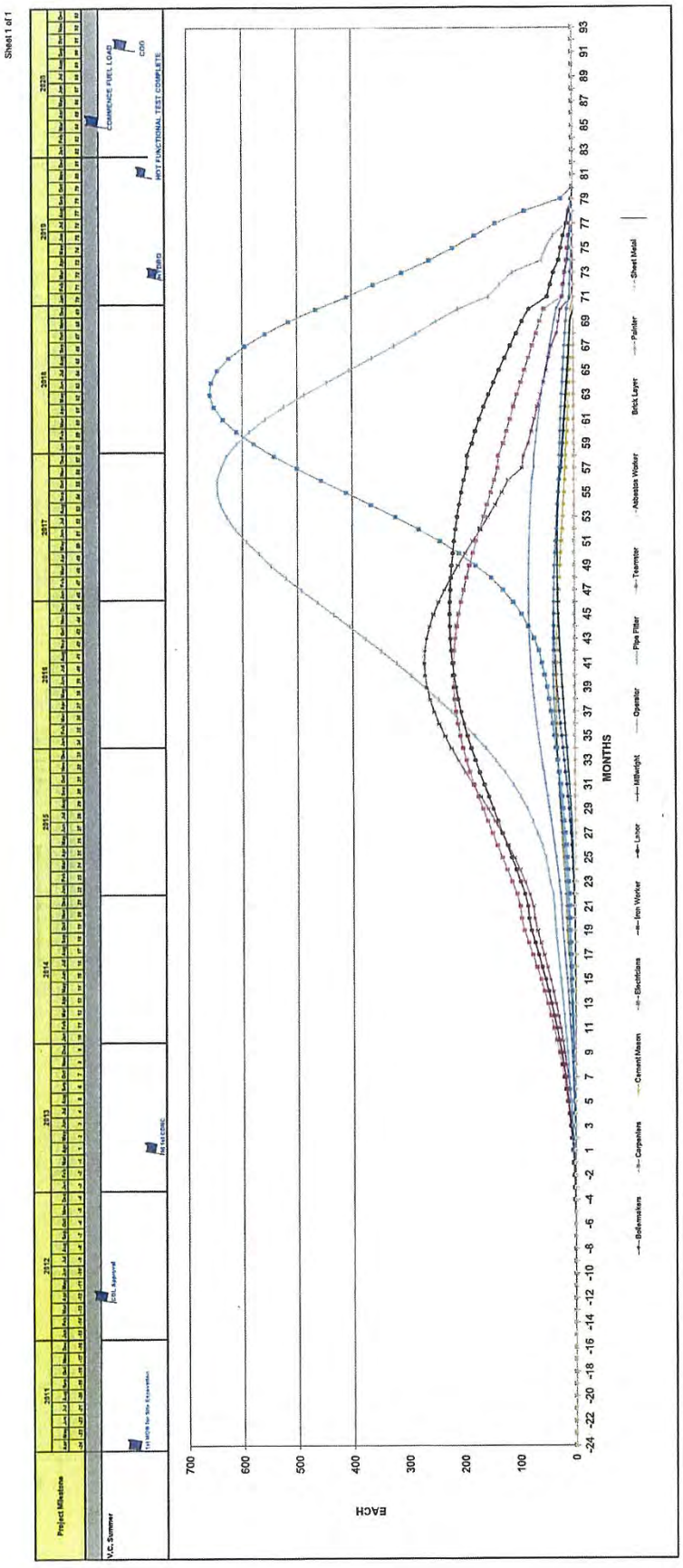

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Figure 5-8. Unit 3 Direct Craft Manpower Curve and Percent Complete Curve

Sheet 1 of 1

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Sheet 1 of 1

Figure 5-9. Total Unit 2 3 Direct Indirect Manpower Curves
(12, 18, 24 Month Staggers)

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Figure 5-10. Total Unit 2 3 Percent Complete Curves
(12, 18, 24 Month Staggers)

6. Startup

This section describes the assessment of the startup aspects of the project. Section 6.1 provides a summary of the current status. Section 6.2 provides startup observations and recommendations.

6.1 Current Status

6.1.1 Initial Test Program Organization

The Initial Test Program (ITP) is set up for an integrated organizational approach. The Owners have overall responsibility for the ITP; however, leadership has been delegated to the Consortium, and a WEC employee has been named the test director. The balance of the organization will be a mix of Owner and Consortium supplied personnel.

Reporting to the test director is the Component Test Group (CTG), currently led by a CB&I employee. The CTG will take turnover of systems from construction and conduct component testing. CTG test engineers will be discipline based and will specialize in the type of component tests related to his/her discipline (electrical, mechanical, control systems).

The test director leads the Preoperational Test Group (PTG). The PTG will take system turnovers from the CTG, conduct system start-up and tuning, and write and conduct system preoperational tests. Each PTG test engineer will be the point of contact for each of his/her assigned systems and will manage and execute all system-level testing activities. The project plan currently includes 155 to 160 systems and subsystems.

The Startup Test Group (STG) is also currently led by the test director. The STG will take system/facility turnover from the PTG and will support preparations for fuel load and the power ascension program.

The ITP organization is structured similarly to those used in many nuclear power plant facilities. There is a separation between component testing, system testing, and power ascension testing activities that will facilitate high confidence in the results of the test program. It is a program that integrates the Owner, NSSS supplier, and designer/constructor personnel to leverage the right resources to properly progress through component testing, preoperational testing, and power ascension.

In addition, the currently assigned test director has worked for many years in the nuclear power industry, with a significant track record in operation, outage management, and startup of nuclear power plants. This test director appeared well organized and to have a good grasp of the complexity of the project and how to approach it.

6.1.2 Test Program Integrity

a. Transition from Construction to the Initial Test Program

To separate the bulk construction program from the ITP, a formal turnover process will designate the official transfer of care, custody, and control from construction to the CTG. Boundary identification packages (BIPs) have been established to break the facility into smaller and more manageable blocks. There are currently about 555 BIPs that will be the basis for turning the facility equipment over to the CTG.

To provide further separation, performance of work activities will switch from the Consortium's QA program to the Owner's QA program. Subsequent construction access to systems transferred to the CTG will be controlled by a work authorization process controlled by the CTG. The work authorization process will provide for the release of work, ensure system configuration supports the nominated construction activity, and identify any required re-testing of components.

The above is intended to provide a high level of confidence that completed testing activities are not invalidated by unauthorized construction activities and are consistent with the approach used in many nuclear power plant facilities.

b. Preoperational Test Procedure Plan

All system preoperational tests will be treated as if they were safety related (i.e., a single development, review, approval, and performance process regardless of the safety significance of the test). The review plan also provides for a full NRC review cycle and a full Joint Test Working Group (JTWG) review/approval cycle prior to test performance and after performance (test results).

Preoperational test specifications are being developed to identify and collect all requirements to be included in each test procedure. The intent is to assemble the design requirements, system parameters, regulatory requirements, ITAAC commitments, and all acceptance criteria for each system. After each test specification is reviewed and approved, the system preoperational test procedure will be developed.

The above is intended to provide a high level of confidence that the preoperational test program adequately demonstrates the integrity of the systems installed in the plant.

c. Startup and Power Ascension Test Procedure Plan

Power ascension test procedures are similar for the new AP1000 units at V.C. Summer and Vogtle, and the Test Director is coordinating a combined effort to get the basic test procedures developed through a sharing of responsibility to develop the procedures. The total list was divided between the two sites. After each site develops its assigned tests, it should be a simple exercise to "localize" each of the procedures to ensure they become specific to each site.

d. Control Circuit Testing

To verify what has been installed is exactly per the project drawings, the CTG will verify control wiring "point to point" (cold checked) prior to being energized. After cold checking, the circuits will be energized and verified for functional correctness. Initial checks on the control loops may be conducted from remote stations since the current schedule does not suggest the control room will be ready. However, to meet the NRC regulatory guide requirement, those control loops initially verified from remote stations will be re-verified from the control room after it is available. This facilitates an earlier start of control loop functionality to support earlier equipment initial operation, as well as final verification to meet the stipulations in the regulatory guide.

e. Component Test Data Base

All component testing is to be tracked, planned, and statused using an Excel spreadsheet (Component Test Matrix) that is currently loaded from a manual takeoff of P&IDs, and it will be kept current through review of all changes issued by engineering. The spreadsheet includes planned durations of each activity, allows entry of actual durations, and calculates percent complete of each and cumulative activities (activity durations should not be confused with jobhours associated with each activity). Real-time updates of completed data records will be made manually on a daily basis, or as turned in to the admin doing the entry, for a reasonably current representation of progress/status. This is separate from the tracking of ITAAC activity progress.

A completions database is a typical, but critical, element in the control and management of the testing activities. What separates this from the typical completions databases is the ability to apply estimated durations to each activity, and use the results to support schedule development. Manloading and levelization of resources will still be performed in the commercial scheduling software.

6.1.3 Training of Operations and Maintenance Personnel

Training of permanent plant operations and maintenance personnel is the responsibility of the Owner. This was not specifically reviewed; however, it was briefly discussed during interviews with the ITP personnel. The current plan includes significant participation of the operations and maintenance personnel in the entire ITP, from component testing through preoperational testing. This is important to the preparation of the plant staff in their assumption of responsibility for system operation prior to fuel load and is consistent with the approach used in many nuclear power plant facilities.

6.1.4 Test Program Staffing

The current staffing plan has a peak (Unit 2/Unit 3 overlap) of 75 WEC test engineers, about 60 CB&I component test engineers, and about 25 Owner personnel. The staffing seems a little higher than the staffing needed based on previous preoperational and startup testing programs at

nuclear power plant facilities; however, historical dual unit plant startups were typically staggered 12 to 18 months apart, not the 8 to 9 months currently on the project schedule.

The test group will have a dedicated craft labor pool that comes out of construction. The WEC labor budget has been verified against the current staffing plan, while the CB&I budget has not yet been verified but is in progress.

6.1.5 Test Program Schedule

a. Schedule Development/Maturity

The component testing and preoperational testing schedules are developed to the point where prerequisite activities and associated ties are established, and the system-level fragnet templates have been loaded to each startup system. Additionally, standard activity durations have been plugged-in and the group is in the beginning phases of adjusting the durations per the Component Test Matrix and the estimated durations for preoperational tests based on complexity. It is too early to determine if the overall schedule duration will be consistent with the 17 to 18 months currently planned between energization and fuel load, as it may take 3 to 4 months to complete the adjustments and perform resource leveling exercises.

b. Construction Turnover to CTG

Review of the Construction to Component Test Group BIP turnover waterfall schedule indicates turnovers are planned to occur from September 2015 through January 2019; the distribution is as follows:

- 2015: 2 turnovers
- 2016: 44 turnovers (cumulative 46)
- 2017: 475 turnovers, 86% of total (cumulative 521, 94% of the total BIPs)
- 2018: 33 turnovers (cumulative 554)
- 2019: 1 turnover (Cumulative 555)

The current plan calls for 86% (or 475) of the BIPs to be turned over in 2017 alone, which is more than 30 BIPs per month. This is a high rate of turnovers that will be difficult to maintain. Even though the turnover process allows for consolidation of BIPs into fewer, larger turnover packages; this rate still indicates that 86% of the systems will be turned over to the CTG in a 12 month period.

This high number of turnovers produces a cumulative total of 94% at the end of 2017; yet, terminations are shown to be less than 70% complete in most areas. The turnover of completed BIPs does not seem to match the number of terminations completed, as it indicates that the last 6% of the BIPs contain over 30% of the terminations, which does not seem correct.

In addition, stringing the turnover of systems over a 31-month period may present problems. The concept of simultaneous operations, where bulk construction activities will be conducted in close proximity to components (and potentially systems) that will be energized and in testing introduces the concepts of Permit to Work (Energized Equipment Lockout/Tagout) and NFPA 70E , Standard for Electrical Safety in the Workplace (arc flash protection). This extends the period of time that poses safety risk to personnel and has a higher potential to slow installation of construction bulks and slip schedule. This can all be managed; but, a total turnover duration (first turnover to last turnover) of 18 to 20 months is more typical of nuclear power plant facilities.

The current project schedule indicates an approximate 9 month stagger between Unit 2 and Unit 3 hot functional tests. This is more aggressive than what was experienced on many past nuclear power plant facilities, which could preclude leveraging personnel from Unit 2 on Unit 3, as well as introducing the concept of two new units on the same site overlapping initial fuel load activities and initial power ascension.

6.2 Observations and Recommendations

Startup observations and recommendations are identified in Table 6-1.

Table 6-1. Startup Observations and Recommendations

No.	Description
S1	Observation(s) The current ITP staffing plan includes heavy Tech Staff, Operations, and Maintenance staff participation. Recommendation(s) • Be diligent with dedication of these resources to support the ITP. The hands-on experience acquired through participation in the test program is important to good performance during the early days of plant initial operation.
S2	Observation(s) The current schedule identifies about 8 months lag between the Unit 2 and Unit 3 hot functional tests. This lag is significantly shorter than previous dual unit nuclear sites, and drives the testing group staffing levels fairly high. Recommendation(s) • Evaluate the likelihood of realizing an 8 month lag between Units 2 & 3. If realistic, ensure mitigations have been planned in case of events on one of the units while the other is in the vulnerable position of still in the testing phase. If not realistic, consider historical lags closer to 12 to 18 months.
S3	Observation(s) The construction turnover of BIPs to the CTG is planned to occur over a 31-month period. This is a long time to have equipment in various stages of testing and layup. Recommendation(s) • Consider reducing the duration of the turnover period to 18 months. This may permit realloca-

Table 6-1. Startup Observations and Recommendations	
No.	**Description**
	tion of resources to complete systems in a more reasonable schedule, reduce the duration the facility would be in a simultaneous operations mode, and possibly reduce the cost of actually completing BIPs.
S4	Observation(s) The timing of construction completion of bulks does not align with the timing of BIP turnovers. At the end of 2017, construction plans to be less than 70% complete with terminations, yet, plans to have turned over 94% of the BIPs. Recommendation(s) • Reexamine construction terminations per cent complete compared to BIP turnovers and adjust the project schedule accordingly.
S5	Observation(s) The overall ITP organization and program are well thought out and follow proven philosophies and processes. Recommendation(s) • Continue along this execution plan and make modifications only if project or regulator changes warrant them.

7. Conclusions

The AP1000 is a first-of-a-kind technology, 10 CFR 52 is a new licensing process, and these are the first new nuclear plants being constructed in the U.S. in decades. Challenges would be expected.

However, the V.C. Summer Units 2 & 3 project suffers from various fundamental EPC and major project management issues that must be resolved for project success:

- The Consortium's project management approach does not provide appropriate visibility and accuracy to the Owners on project progress and performance.
- The Consortium's forecasts for schedule durations, productivity, forecasted manpower peaks, and percent complete do not have a firm basis. Bechtel's assessment, based on certain assumptions, of the Unit 2 and 3 commercial operation dates indicates:

Impacts on Commercial Operation Dates		
	Unit 2	Unit 3
Current COD	June 2019	June 2020
Adjustment	18 to 26 months	24 to 36 months
New COD	Dec 2020 to Aug 2021	June 2022 to June 2023

- There is a lack of a shared vision, goals, and accountability between the Owners and the Consortium.
- The Consortium lacks the project management integration needed for a successful project outcome.
- The WEC-CB&I relationship is strained, caused to a large extent by commercial issues.
- The overall morale on the project is low.
- The Contract does not appear to be serving the Owners or the Consortium particularly well.
- The issued design is often not constructible resulting in a significant number of changes. The construction planning and constructability review efforts are not far enough out in front of the construction effort to minimize impacts.
- There is significant engineering and licensing workload remaining (currently over 800 engineers). ITAAC closure will be a significant effort.
- Emergent issues potentially requiring NRC approval of LARs remain a significant project concern.
- There is a significant disconnect between construction need dates and procurement delivery dates.

- The amount of stored material onsite is significant, creating the need for an extended storage and maintenance program.
- Construction productivity is poor for various reasons including changes needed to the design, sustained overtime, complicated work packages, aging workforce, etc.
- The indirect to direct craft ratio is high.
- Field non-manual turnover is high.
- The Owners do not have an appropriate project controls team to assess/validate Consortium reported progress and performance.
- The schedule for the startup test program is in the early stages of development. The BIP turnover rate appears to be overly aggressive.

Bechtel recognizes that the recently announced purchase of CB&I nuclear by WEC may change some of the recommendations regarding the Consortium. Nonetheless, most of the recommendations identified in this report still apply to the project under the new EPC contract structure.

Appendix A

Documents Received from the Owners and the Consortium

Appendix A
Documents Reviewed from the Owners and the Consortium

Documents reviewed during the assessment are identified in Table A-1.

Table A-1. Documents Reviewed During the Assessment

No.	Description	Hard Copy (HC) or Electronic (E)
1.1	VCS Project Supply Chain Management-Procurement Plan, VSG-GW-GPH-010), 5/8/15, 87 pages	E
1.1.1	VCS Project Construction Execution Plan (VSG-GW-GCH-001), Rev 2, 11/19/09, 64 pages	E
1.1.2	VCS Project Resource Staffing Plan, VSG-GW-GXH-001), 2/6/09, 11 pages	E
1.1.3	VCS Project Regulatory-Licensing Management Plan, (VSG-GW-G:H-001), Rev 5, 6/5/09, 14 pages	E
1.1.4	VCS Project Execution Plan (VSG-GW-GBH-300), Rev 3, 8/13/09, 52 pages	E
1.1.5	VCS Project Engineering Plan (VSG-GW-GEH-001), Rev 2, 1/18/12, 50 pages	E
1.1.6	VCS Project Completion and Closeout Plan (VSG-GW-GBH-370), Rev 1, 3/4/09, 19 pages	E
1.1.7	VCS Integrated Project Risk Management Plan (VSG-GW-GBH-310), Rev 1, 9/5/13, 10 pages	E
1.1.8	VCS ITAAC Program Execution Plan (VSG-GW-GLH-002), Rev 3, 1/12/15, 37 pages	E
1.1..9	NNDG-CS-0001 Rev. 5 - Oversight of Construction Activities (NNDG-CS-0001), Rev 5, 1/22/15, 8 pages	E
1.1.10	Project Oversight Strategy Plan, Rev. 2, 11/12/14,28 pages	E
1.1.11	NNDG-AP-0003 - Oversight Plan Development and Execution (NNDG-AP-0003), 6/11/14, 10 pages	E
1.1.12	NND-CS-0013 - Risk Assessment of Consortium Construction Activities, 1/22/15, 9 pages	E
1.1.13	NND-QS-0006 Rev. 2 - NND QS Audits, Rev 2, 12/17/15, 40 pages	E
1.1.14	NND-CS-0013 Attachment 1 From Review 06-18-2015, 6/18/15,7 pages	E
1.1.15	NND-AP-0308 Rev. 0 - Construction Readiness Review Procedure, 5/29/14, 9 pages	E
1.1.16	NND-AP-0304 Rev. 1 - Construction Oversight, Rev 1, 4/30/13, 11 pages	E
1.1.17	NND-AP-0024 Rev. 3 - Assessment Program, Rev 3, 10/9/14, 83 pages	E
1.1.18	NND-AP-0018 Rev. 5 - Observation Program , Rev 5, 2/3/15,33 pages	E
1.1.19	AP1000 Initial Test Program - Commissioning Program and Turnover	E

Table A-1. Documents Reviewed During the Assessment		
No.	Description	Hard Copy (HC) or Electronic (E)
	Plan (VSG-GW-GBH-360), Rev 2) , 1/12/15,129 pages	
1.1.20	NND-AP-0002 Rev. 15 - Corrective Action Program (NND-AP-0002), Rev 15), 3/31/15,63 pages	E
1.2	V.C. Summer Units 2 & 3 Monthly Status Report - MARCH 2015, 107 pages	E
1.2.1	V.C. Summer Units 2 & 3 Monthly Status Report - JUNE 2015, 111 pages	E
1.2.2	V.C. Summer Units 2 & 3 Monthly Status Report - APRIL 2015, 116 pages	E
1.2.3	V. C. Summer Units 2 & 3 Monthly Status Report - MAY 2015, 112 pages	E
1.2.4	2015 07 16 - July PRM (final), 7/16/15,170 pages	E
1.2.5	2015 06 17 - June PRM Slides (Final), 6/18/15,181 pages	E
1.2.6	2015 05 21 - May PRM (final), 168 pages	E
1.2.7	2015 04 17 - April PRM (final as presented), 154 pages	E
1.2.8	2015 03 17 - March PRM (final), 154 pages	E
1.3	June 2015 Consortium Monthly Meeting Minutes, 6-18-15, 103 pages	E
1.3.1	May 2015 Consortium Project Review Meeting Minutes, 6-17-15, 97 pages	E
1.3.2	May 2015 Project Review Meeting Minutes - Owner Comments, 5-21-15, 7 pages	E
1.3.3	March 2015 Project Review Meeting Minutes - Owner Comments, 3/19/15, 8 pages	E
1.3.4	March 2015 Consortium Project Review Meeting Minutes, 4/8/15, 88 pages	E
1.3.5	June 2015 Project Review Meeting Minutes - Owner Comments, 6/18/15, 9 pages	E
1.3.6	June 2015 Consortium Project Review Meeting Minutes, 7/14/15, 103 pages	E
1.3.7	April 2015 Project Review Meeting Minutes - Owner Comments, 4/16/15, 8 pages	E
1.3.8	April 2015 Consortium Project Review Meeting Minutes, 90 pages	E
1.5	VC Summer Site Overall Craft Staffing (Includes Absenteeism and PF) dated 5/5/2015, 1 pages, 11 X 17	HC
1.5.1	VC Summer Site Overall Craft Forecast and Actuals, dated 8/27/15, 1 pages, 11 X 17	HC
1.5.2	Power Leadership_CBI_as of Jan 2015, 1 page	E
1.5.3	NND Staffing_8-15 (Owner Staffing), 2 pages	E
1.6	Westinghouse Engineering org charts for VCS Assessment, 6-1-15, 7 pages	E
1.6.1	NP&MP Org Charts for VCS Assessment – 6-1-15, 8 pages	E

Table A-1. Documents Reviewed During the Assessment		
No.	Description	Hard Copy (HC) or Electronic (E)
1.6.2	Westinghouse Nuclear Automation org charts for VCS Assessment - July 28, 2015, 8 pages	E
1.6.3	VC Summer Site Org Chart - CB&I - Jan 2015, 1/29/15,16 pages	E
1.6.4	Westinghouse Nuclear Automation org charts for VCS Assessment - July 28, 2015, 8 pages	E
1.6.5	Westinghouse Engineering org charts for VCS Assessment - July 28, 2015, 7 pages	E
1.6.6	WEC VCS Org Chart - Site 07-28-15, 1 page	E
1.6.7	Power_Leadership_CBI_2015.7.15, 1 page	E
1.6.8	NP&MP Org Charts for VCS Assessment, 6/1/15,22 pages	E
1.6.9	NP&MP Org Charts for VCS Assessment - July 28, 2015, 22 pages	E
1.7	Calendar of Weekly/Monthly Meetings (w/Owner attends highlighted), 3 pages, 8.5 X 11	HC
1.8	Top 17 Risks – Mitigation Plans (As of August 3, 2015; VC Summer Schedule Risk Register, dated 8/5/15, 14 pages, , 8.5 X 11	HC
1.8.1	VCS Items Meeting, dated 9/4/15,9 pages, , 8.5 X 11	HC
1.8.2	VC Summer Plan of the Day – 9/3/15, 36 pages, PowerPoint , 8.5 X 11	HC
2.1	Design Completion (Luca Oriani, Westinghouse), 5 pages, 8.5 X 11	HC
2.3.1	WEC PCC Level 1 Critical Issues List, 3 pages, 11 X 17	HC
2.3.2	Issues List, dated 9/4/15, 5 pages, 8.5 X 11	HC
2.8.	Pending DCP List, 9/3/15, 4 pages, 8.5 X 11	HC
2.8.1	VC Summer LAR Cross Reference, 9/10/15, 18 pages, PowerPoint 8.5 X 11	HC
2.8.2	Overview of the AP1000 Design Change Process, dated 1/14/15, 18 pages, PowerPoint , 8.5 X 11	HC
2.9	AP1000 Plant Major Milestones, 28 pages, PowerPoint 8.5 X 11	HC
2.9.1	P&ID Revisions (P2P, 8/31/15), 10 pages, 11 X 17	HC
3.2	Weekly Modules 4-Box Report - 07-14-15 Rev. 1, 37 pages	E
4.1	VCS 2 & 3 Weekly Construction Metric 15-07-27, 58 pages	E
4.2.1	Unit 3 Total CB&I Commodity Percents Complete (graph), dated 9/3/15, 3 pages, 11 X 17	HC
4.2.2	VC Summer Site Total CB&I Percents Complete (graph)	HC
4.2.3	Unit 2 CB&I Commodity Percents Complete	HC
4.3	VCS Project Subcontracting Strategy – Report, dated 8/31/15, 17 pages, 11 X 17	HC
4.4	VC Summer Daily Report 7 21 2015, 7/21/15,6 pages	E
4.5	VC Summer Equipment List, 25 pages, 8.5 X 11	HC
5.1	2015-08-03 Month End U3 Integrated Calc Major Milestone-Key Dates, 8/6/15, 1 page	E
5.1.1	2015-08-03 Month End U2 Integrated Calc Major Milestone-Key	E

Table A-1. Documents Reviewed During the Assessment		
No.	Description	Hard Copy (HC) or Electronic (E)
	Dates, 8/6/15, 1 page	
5.1.2	2015-06-29 Month End U3 Integrated Calc Major Milestone-Key Dates, 7/7/15, 1 page	E
5.1.3	2015-06-29 Month End U2 Integrated Calc Major Milestone-Key Dates, 7/7/15, 1 page	E
5.1.4	2015-06-01 Month End U3 Integrated Calc Major Milestone-Key Dates, 6/5/15, 1 page	E
5.1.5	2015-06-01 Month End U2 Integrated Calc Major Milestone - Key Dates, 6/5/15, 1 page	E
5.1.6	2015-04-27 Month End U2 Integrated Calc Major Milestone-Key Dates, 4/28/15,1 page	E
5.1.7	2015-04-27 Month End U3 Integrated Calc Major Milestone-Key Dates, 4/28/15, 1 page	E
5.1.8	2015-03-30 Month End U3 Integrated Calc Major Milestone-Key Dates, 4/9/15, 1 page	E
5.1.9	2015-03-30 Month End U2 Integrated Calc Major Milestone-Key Dates, 4/9/15,1 page	E
5.2	2015-08-03 U3 Crit Path ILRT, 8/5/15, 4 pages	E
5.2.1	2015-08-03 U3 Crit Path COD, 8/5/15, 4 pages	E
5.2.2	2015-08-03 U2 Crit Path ILRT, 8/5/15, 4 pages	E
5.2.3	2015-08-03 U2 Crit Path COD, 8/5/15, 5 pages	E
5.2.4	2015-06-29 U3 Crit Path ILRT, 6/30/15, 4 pages	E
5.2.5	2015-06-29 U3 Crit Path COD, 7/7/15,4 pages	E
5.2.6	2015-06-29 U2 Crit Path ILRT, 6/29/15,3 pages	E
5.2.7	2015-06-29 U2 Crit Path COD, 7/7/15,4 pages	E
5.2.8	2015-06-01 U3 Crit Path COD, 6/3/15,4 pages	E
5.2.9	2015-06-01 U3 Crit Path ILRT, 6/4/15, 4 pages	E
5.2.10	2015-06-01 U2 Crit Path ILRT, 6/3/15,3 pages	E
5.2.11	2015-06-01 U2 Crit Path COD, 6/2/15,6 pages	E
5.2.12	2015-04-27 U3 Crit Path ILRT, 4/30/15,4 pages	E
5.2.13	2015-04-27 U3 Crit Path COD, 4/30/15,5 pages	E
5.2.14	2015-04-27 U2 Crit Path ILRT, 4/30/15,5 pages	E
5.2.15	2015-04-27 U2 Crit Path COD, 4/30/15,4 pages	E
5.2.16	2015-03-30 U3 Crit Path ILRT, 4/6/15,4 pages	E
5.2.17	2015-03-30 U3 Crit Path COD, 4/6/15, 4 pages	E
5.2.18	2015-03-30 U2 Crit Path ILRT, 4/1/15, 4 pages	E
5.2.19	2015-03-30 U2 Crit Path COD, 4 pages	E
6.1	QA Audits at VC Summer 2014/2015, 1 page, 8.5 X 11	HC
6.1.1	Quality Assurance Scheduled Surveillances, dated 8/26/15, 18 pages, 8.5 X 11	HC

Table A-1. Documents Reviewed During the Assessment		
No.	Description	Hard Copy (HC) or Electronic (E)
6.5	NND-AUD-201503 Owner's COL and Project Oversight Audit, 7/2/15,16 pages	E
6.5.1	NND-15-0247 2015 Corrective Action Program Audit Report, 4/16/15,9 pages	E
6.5.2	NND-15-0143 Parallel Module Fabrication Process Audit Report, 3/24/15,8 pages	E
6.5.3	NND-15-0090 2015 Procurement Processes Audit Report, NND-AUD-201501, 2/20/15,8 pages	E
6.5.4	2015 Audit Schedule Rev. 1, 6/12/15,2 pages	E
7.1	Licensing Weekly 8-3-15, 10 pages	E
7.1.1	Licensing Weekly 8-10-15, 10 pages	E
7.1.2	Licensing Weekly 7-6-15, 11 pages	E
7.1.3	Licensing Weekly 7-27-15, 10 pages	E
7.1.4	Licensing Weekly 7-20-15, 10 pages	E
7.1.5	Licensing Weekly 7-13-15, 10 pages	E
7.1.6	Licensing Weekly 6-8-15, 11 pages	E
7.1.7	Licensing Weekly 6-29-15, 12 pages	E
7.1.8	Licensing Weekly 6-15-15, 11 pages	E
7.1.9	Licensing Weekly 6-22-15, 11 pages	E
7.1.10	Licensing Weekly 6-1-15, 11 pages	E
7.2.11	2015-08-10 VC Summer NRC Schedule, 3 pages	E
7.2.12	2015-08-03 VC Summer NRC Schedule, 3 pages	E
7.2.13	2015-07-27 VC Summer NRC Schedule, 3 pages	E
7.2.14	2015-07-20 VC Summer NRC Schedule, 3 pages	E
7.2.15	2015-07-13 VC Summer NRC Schedule, 3 pages	E
7.2.16	2015-07-06 VC Summer NRC Schedule, 3 pages	E
7.2.17	2015-06-29 VC Summer NRC Schedule, 3 pages	E
7.2.18	2015-06-22 VC Summer NRC Schedule, 3 pages	E
7.2.19	2015-06-15 VC Summer NRC Schedule, 3 pages	E
7.2.20	2015-06-08 VC Summer NRC Schedule, 3 pages	E
7.2.21	2015-06-01 VC Summer NRC Schedule, 3 pages	E
7.4	VCS Permit Status 6-11-15, 5 pages	E
7.8	NRC Report 8-4-15, 8/4/15,3 pages	E
7.8.1	NRC Report 7-7-15, 7/7/15,3 pages	E
7.8.2	NRC Report 7-21-15, 7/21/15,3 pages	E
7.8.3	NRC Report 7-14-15, 7/14/15,3 pages	E
7.8.4	NRC Report 6-9-15, 6/9/15,3 pages	E
7.8.5	NRC Report 6-2-15, 6/2/15,3 pages	E

Table A-1. Documents Reviewed During the Assessment		
No.	Description	Hard Copy (HC) or Electronic (E)
7.8.6	NRC Report 6-16-15,6/16/15,3 pages	E
7.8.7	NRC Report 5-5-15, 5/5/15,3 pages	E
7.8.8	NRC Report 5-19-15, 5/19/15,3 pages	E
7.8.9	NRC Report 5-13-15, 5/13/15,3 pages	E
8.1	Engineering, Procurement and Construction Agreement between SCE&G, for Itself and as Agent for the SC Public Service Authority, as owner and a Consortium consisting of Westinghouse Electric Company LLC and Stone & Webster, Inc., as Contractor for AP1000 Nuclear Power Plants Dated as of May 23, 2000 (Confidential Trade Secret Information – Subject to Restricted) dated 5/23/08 (176 pages, 8.5 X 11)	HC
9.1.1	Owner Org Charts - Bechtel Assessment, 1 page	E
9.1.1.2	Owner Org Charts - Bechtel Assessment, 14 pages	E
9.3	Exhibit A, Scope of Work/Supply and Division Responsibility, 62 pages, 8.5 X 11	HC
9.3.1	AP1000 Plant Division of Responsibility – VC Summer 2&3 (VSG-GW-G8Y-100), 70 pages, 8.5 X 11	HC
10.1	Commercial Review Meeting, dated 8/19/15, 7 pages, PowerPoint 8.5 X 11	HC
10.2	Unit 3 Standard Plant Performance (Month end July 2015), 1 page, 11 X 17	HC
10.12	VC Summer U0 CSI Site-Specific EPC, dated 9/7/15, 3 pages, 11 X 17	HC
11.2	Modules Illustration, 1 page, 8.5 X 11	HC
11.2.1	AP1000 Module Overview NI Structural Modules, 166 pages, PowerPoint 8.5 X 11	HC
11.27	Project Controls Meeting Material (9/15 Meeting), 15 pages, 11X17	HC
12.1	VC Summer Plan of the Day, October 01, 2015, 33 pages, PowerPoint 8.5 X 11	HC
12.2	Nuclear Island Mechanical Systems Reference Document Package,AP1000, May 2015 (Includes General Arrangements, Room Numbering and Module Locations, 79 pages, 11X17	HC
12.3.1	Un-redacted Article 3 added (9/25/15) Un-redacted Article 7 added (9/25/15), but related Exhibit J, not added. Un-redacted Article 9 and 10 added (9/25/15) - Schedule E, project schedule – not added - Schedule F, milestone schedule – not added - Schedule J, price adjustment provisions – not added	HC
12.3.2	Agreement Change Order 1 – 7/14/08, Engineering, Procurement and Construction Agreement, 8 pages, 8.5 X 11	HC
12.3.3	Agreement Change Order 2 – 9/10/09 (provision of Limited Scope Simulators, LSS) 12 pages, 8.5 X 11	HC

Table A-1. Documents Reviewed During the Assessment		
No.	Description	Hard Copy (HC) or Electronic (E)
12.3.4	Agreement Change Order 3 – 1/14/10, Parr Road Rehabilitation, 27 pages, 8.5 X 11	HC
12.3.5	Agreement Change Order 5 – 5/4/10, Revised Senior Reactor Operator Instructor Training Program, 37 pages, 8.5 X 11	HC
12.3.6	Agreement Change Order 6 – 6/29/10, (substitute HydraNuts ILO AP1000 Standard Plant reactor vessel stud tensioners . . .), 14 pages, 8.5 X 11	HC
12.3.7	Agreement Change Order 7 – 7/1/10, (Stone & Webster . . . .), 9 pages, 8.5 X 11	HC
12.3.8	Agreement Change Order 8 – 4/11/11, (transfer Stone & Webster Target Price COW to Firm Price . . .), 51 pages, 8.5 X 11	HC
12.3.9	Agreement Change Order 9 – 11/23/10, (RFP to reconfigure outgoing transmission lines from VCS#2 switchyard . . .), 5 pages, 8.5 X 11	HC
12.3.10	Agreement Change Order 10 – 11/22/10, Access to Westinghouse Primavera Architecture, 12 pages, 8.5 X 11	HC
12.3.11	Agreement Change Order 11 – 2/14/11, Study and Analyze the Impact of Delayed COL. Receipt of Construction Schedule, 8 pages, 8.5 X 11	HC
12.3.12	Agreement Change Order 12 – 12/8/11, Impa ct from Health Care and Education Reconciliation Act of 2010, 12 pages, 8.5 X 11	HC
12.3.13	Agreement Change Order 13 – 2/14/12, Ovation Work Stations. 4 pages, 8.5 X 11	HC
12.3.14	Agreement Change Order 14 – 2/26/12, Cyber Security Phase 1, 53 pages, 8.5 X 11	HC
12.3.15	Agreement Change Order 15 – 2/16/12,WLS Discharge Piping, 4 pages, 8.5 X 11	HC
12.3.16	Agreement Change Order 18 – 9/17/14, Perch Guards, 6 pages, 8.5 X 11	HC
12.3.17	Agreement Change Order 19 – 10/1/14, Simulator Hardware/Software/Training, 11 pages, 8.5 X 11	HC
12.3.18	Agreement Change Order 20 – 12/2/14, Method of Calculating ACA Impact 2011, 2012, 2013, 8 pages 8.5 X 11	HC
12.3.19	Agreement Change Order 21 – 2/16/15, ITAAC Maintenance, 8 pages, 8.5 X 11	HC
12.3.20	Agreement Change Order 22 – 7/30/15, Common-Q Maintenance Training System Equipment and Software, 31 pages, 8.5 X 11	HC
12.3.21	Agreement Change Order 23 – 8/5/15, Simulator Development System (SDS), 64 pages, 8.5 X 11	HC
12.3.22	Agreement Change Order 24 – 8/20/15, 94 pages, 8.5 X 11	HC
12.5	Field Fabrication and Installation Specification, 3.9 Installation of Spool Pieces and Field Fabricated Piping/Training, 6 pages, 8.5 X 11	HC
12.5.1	Piping Isometric General Notes, Dwg. No. APP-GW-P_W-100, 1 page, 11 X 17	HC

Table A-1. Documents Reviewed During the Assessment		
No.	Description	Hard Copy (HC) or Electronic (E)
12.5.2	Piping Isometric Symbol Legend, Dwg No. APP-GW-PLW-102, 1 page, 11 X 17	HC
12.5.3	Shield Building Stell Wall Panels EL 100-0" to 248'-6 1/2 " General Notes, Sheet 1 & 2, 11 X 17	HC
12.5.4	AP1000 Structural Modules General Notes Dwg No. APP-GW-S9-100 through 107, 7 pages, size 11X17	HC
12.5.5	General Notes Mechanical Modules (Dwg No. APP-GW-K9-100 through 103, 4 pages, size 11X17	HC
12.9	Westinghouse Home Office Engineers not charging/charging VC Summer Project, 1 page, size 8.5 X 11	HC
12.9.1	CB&I Total Head Count for Design Engineering and Support, 1 page, size 8.5 X 11	HC
12.10	Historical and Open E&CDRs and N&Ds,4 pages, size 8.5 X 11	HC
12.13	Cives CGD Submittal Review Status, 1 page, 8.5 X 11	HC
12.15	Site Overall Total, Direct Construction Only (Planned and Earned Hours) curve, 1 page, 11X17	HC
12.17	VC Summer Total Steel Commodity, 7 pages, 11X17	HC
12.21	CB&I Direct Construction Labor Summary, dated May, 2015, 1 page, 11X17	HC
12.23	Available Work Assuming No Manpower Constraints (table), 1 page, 8.5 X 11	HC
12.24	VC Summer Initial Test Program Unit 2 & 3, Target Completion Schedule, 1 page, 11X17	HC
12.26	EBS_NND_ Daily Active Detail, 7 pages, 8.5 X 11	HC
12.28	ROS Impacts Report, 6 pages, 11X17	HC
12.29	Engineering Impacts Report, 1 pages, 8.5 X 11	HC
13.1	Westinghouse Engineering Remaining Schedule (2015-09-28), 135 pages, 8.5 X 11	HC
13.7	WEC PO Status report, 1 page, 8.5 X 11	HC
13.9	Corrective Action Program Status (CAPS) Report, dated 9/17/15, 19 pages, 8.5 X 11	HC
14.2	Indirect Cost Review, 22 pages, 8.5 X11	HC
14.3	Indirect/direct hours Week Ending 08-16-15 (Indirect Labor Report), 4 pages, 8.5 X 11	HC
15.6	Summary of the key engineering activities in the ECS remaining in the schedule that have a tie to construction, 1 page, 8.5 X 11	HC
15.6.1	Post-Engineering Design Closure Work Streams, 1 page, 8.5 X 11	HC
15.6.2	Engineering Items – ROYG (2015 – 09-28), pages 1 – 70, 11X17	HC
15.6.3	Procurement Items – ROYG (2015-09-28) pages 1-128, 11X17	HC
15.6.4	Licensing Items - ROYG (2015-09-28) pages 1-12, 11X17	HC
15.7	Engineering Resources, 1 page, 8.5 X 11	HC

Table A-1. Documents Reviewed During the Assessment		
No.	Description	Hard Copy (HC) or Electronic (E)
15.9	VC Summer Discussion on I&C Schedule & PRS – July 2015, 10 pages	HC
15.9.1	I&C Baseline 8 Engineering Remaining, 51 pages, 8.5 X 11	HC
15.11	Annex Building Cable Tray Plan Area EL 100' – 0", Sheet 2 of 2, Dwg No. APP4031-ER-013, 1 page, 11X17	HC
15.11.1	Annex Building Cable Tray Support Location Plan Area 1 & Area 4 EL 100' – 0" Sheet 2 0f 3, Dwg No. APP4031-SH-014, 1 page, 11X17	HC
15.11.2	Annex Building Cable Tray Support List & Fabrication Details Area 1, EL 100'-0" Sh 1 of 3 Dwg No. APP-4031-SHX-01201, 1 page, 11X17	HC
15.11.3	Annex Building Cable Tray Support List & Fabrication Details Area 1, EL 100'-0" Sh 2 of 3, Dwg No. APP-4031-SHX-01301 1 page, 11X17	HC
15.11.4	Annex Building Cable Tray Support List & Fabrication Details Area 1, EL 100'-0" Sh 3 of 3, Dwg No. APP-4031-SHX-01401 1 page, 11X17	HC
15.11.5	Fabrication Requirements Cope Tray Supports Seismic Category III Trapeze Rod Support Detail, Dwg No. APP-SH27-VF-201, 1 page, 11X17	HC
15.11.6	Annex Building – Area 4 Structural Steel Roof Supplemental Steel Plan, Dwg No. AP-4044-SS-005, 1 page, 11X17	HC
15.13	Remaining Hold DDs, 37 pages, 1 page 8.5 X 11, 36 pages 11 X 17	HC
15.13 – 15.14	Hold Docs missing DD, 3 pages, 11 X 17	HC
15.16	CB&I Remaining Equipment Deliveries, 100 pages, 11X17	HC
15.16.1	Westinghouse Remaining Equipment Deliveries, 17 pages, 11X17	HC
16.1 – 16.6	List – Construction Package – On Hold, 3 pages, 11X17	HC
16.1 – 16.6.1	VC Summer Unit -2 Auxiliary Building Room Plan 12306, Strategic Planning Team September 14, 2015 (DRAFT), dated 9/14/15, 13 pages, 8.5 X 11	HC
16.1 – 16.6.2	Email (fr James B. Kelly to Con Matthews dated 9/24/15, Subject: Drawings required for Electrical cable tray supports with APP-GW-GBH-451, Rev 0, AP1000 Standard Plant Engineering Document List – Annex Building Areas 1, 2, 3 – Raceways and Supports Construction Deliverables – Elevation 100' to 117'6" (AN2-RC-X) 15 pages, 8.5 X 11	HC
16.1 – 16.6.3	Annex Building Cable Tray Plan Area 1 El. 100' -0" Sheets 1 o f3, Dwg No. APP-4031-ER-012, 1 page 11X17	HC
16.1 – 16.6.4	Liquid Radwaste System, Auxiliary Building Room 12259, Annulus Pipe Chase, Dwg No. APP-WLS-PLW-451, 1 page, 11X17	HC
16.1 – 16.6	Pipe Support Drawing WLS System, Dwg No. APP-WLS-PH-12R00891, 1 page, 11X17	HC
16.1 – 16.6.5	Shield Building Lower Annulus Inside Embedments Development View Radius 69'-6" (Sheet 1), Dwg No. APP-1020-CE-100, 1 page, 11X17	HC
16.1 –	Shield Building Lower Annulus Inside Embedments Index Develop-	HC

Table A-1. Documents Reviewed During the Assessment		
No.	Description	Hard Copy (HC) or Electronic (E)
16.6.6	ment View Radius 69'-6" (Sheet 1), Dwg No APP-1020-CEX-100, 1 page, 11X17	
16.1 – 16.6.7	Shield Building Lower Annulus Inside Embedments Index Development View Radius 69'-6" (Sheet 2), Dwg No APP-1020-CEX-102, 1 page, 11X17	HC
16.1 – 16.6.8	Shield Building Lower Annulus Inside Embedments Index Development View Radius 69'-6" (Sheet 4), Dwg No APP-1020-CEX-104, 1 page, 11X17	HC
16.1 – 16.6.9	Standard Embedment Plates Deformed Wire Anchor (DWA) Type, Dwg No APP-CE01-CE-002, 1 page, 11X17	HC
16.2/3	Overall Modules Response status, 11 pages, 8.5 X 11	HC
16.10	RBL (APP), RBL (CPP), Support Qualification, # Supports Qualified by month, 2 pages, 8.5 X 11	HC
17.2	VCS Unit 2 – Construction T/O to Component Test (Waterfall), 13 pages, size 8.5 X 11	HC
17.2.1	VCS Unit 1 - Service Water – Service Water Initial Test Program, 1 page, size 11 X 17	HC
17.3	EDCR Listing – from 4/30/15 to 10/1/2015, 10 pages, 8.5 X 11	HC
17.3.1	CBI EDCR Listing - pages 1 to 108, 8.5 X 11	HC
17.4	WEC – CBI Staffing Summary Table, 1 page, 8.5 X 11	HC
17.5 (2.9)	Weekly ECS Report Out, 9/30/15, 48 pages, 8.5 X 11	HC
17.6	Monthly Engineering Completion Status Meeting, September 9th, 2015, 22 pages, PowerPoint, size 8.5 X 11	HC
17.6.1	Monthly Engineering Completion Status Meeting, October 7, 2015, 24 pages, PowerPoint, size 8.5 X 11	HC
17.7 (2.3)	Level 1 Issue Executive Summary Report, 2 pages, 8.5 X 11	HC
17.8	CB&I 1X4 POs Released, 3 pages,	HC
17.9	CBI To-Go POs, 1 page, 8.5 X 11	HC
17.10	Standard Plant ITAAC 2.3 06.09b.iv Performance Documentation Plan (Doc. No. APP-RNS-ITH-004), 11 pages, size 8.5 X 11	HC
17.10.1	Standard Plant ITAAC 2.2 02.02a Performance Documentation Plan (Doc. No. APP-PCS-ITH-014), 13 pages, size 8.5 X 11	HC
17.10.2	Standard Plant ITAAC 2.1 02.11b.iii Performance and Documentation Plan (Doc No APP-RCS-ITH-048), 12 pages, size 8.5 X 11	HC
17.10.3	Standard Plant ITAAC 2.1 02.08b Performance and Documentation Plan (Doc No APP-RCS-ITH-056), 13 pages, size 8.5 X 11	HC
17.10.4	Standard Plant ITAAC 2.1 02.08d.vii Performance and Documentation Plan (Doc No APP-RCS-ITH-060), 10 pages, size 8.5 X 11	HC
19.2	Work Package Review Task Team, 3 pages, 8.5 X 11	HC

Table A-1. Documents Reviewed During the Assessment		
No.	Description	Hard Copy (HC) or Electronic (E)
--	CBI AP1000 Strategic Planning Team – Unincorporated DCP Report, 5 pages, 8.5 X 11	HC
--	VCS Monthly Project Review Meeting, September 17, 2015, 156 pages, PowerPoint 8.5 X `11	HC
--	VCS Site Design Engineering Drawing Booklet (1), System P&IDs & Electrical One-lines, 321 pages, 11X17	HC
--	VCS Plan of the Day - 9-9-15, 35 pages	E
--	VC Summer Units 2 & 3 Project Assessment Consortium Meeting (Presentation), dated 9/9/15, (2 Copies), 131 pages, PowerPoint 8.5 X 11	HC
--	VC Summer Nuclear Station Units 2 and 3 Updated Final Safety Analysis Report , Chapter 1 (Rev 3) 8.5 X 11 (Large packet)	HC
--	VC Summer – Site Specific Engineering Schedule – Remaining (Sorted by System /Major Sequence) Data Date: 28-Sep-15, CB&I – 200 pages, 11X17	HC
--	AP1000 Domestic Design Finalization – CBI Std Plant – DOM DF – To GO Engineering, 157 pages, 11X17	HC
--	E&DCR Title: Requalification of KOPEC conduit supports at Elevation 66'-6" Area 2, E&DCR No. APP-1212-GEF-087, Rev 0., 25 pages, 8.5 X 11	HC
--	VC Summer Nuclear Station Units 2 and 3 Updated Final Safety Analysis Report , Chapter 3 (Rev 3) , 8.5 X 11 (Large packet)	HC
--	VCS Schedule - WEC PM Milestones, 4 pages	E
--	VCS Schedule - WEC PM Milestones, 6 pages	E
--	VCS Schedule - Module Assembly Summary, 1 page	E
--	VCS Schedule – Licensing, 44 page	E
--	VCS Schedule - ITAAC Detail, 137 pages	E
--	VCS Level 1 - Construction Schedule, 3 pages	E
--	VCS Schedule - Module Procurement Detail, 8/25/15,55 pages	E
--	VCS Schedule - Module Procurement Summary, 8/25/15, 6 pages	E
--	VCS Schedule - Module Procurement, 51 pages	E
--	VCS Schedule - NAC Detail, 8/30/15,40 pages	E
--	VCS Schedule - NAC Summary, 2 pages	E
--	VCS Schedule – NAC, 8/30/15,53 pages	E
--	VCS Schedule - Panel Delivery Detail, 26 pages	E
--	VCS Schedule - Panel Delivery Summary, 8/25/15,2 pages	E
--	VCS Schedule - Panel Delivery, 8/25/15,26 pages	E
--	VCS Schedule - Procurement Detail, 8/25/15,323 pages	E
--	VCS Schedule - Procurement Summary, 8/25/15, 9 pages	E
--	VCS Schedule - Procurement WES Detail, 8/25/15,158 pages	E

Table A-1. Documents Reviewed During the Assessment		
No.	Description	Hard Copy (HC) or Electronic (E)
--	VCS Schedule - Procurement WES Summary, 8/25/15, 12 pages	E
--	VCS Schedule - Procurement WES, 127 pages	E
--	VCS Schedule – Procurement, 261 pages	E
--	VC Summer EPC Agreement, 5/23/15,176 pages	E
--	Meeting Sign in, Consortium 9-9-15 Presentation , 3 pages	E
--	September 9 Presentation Draft Agenda, 2 pages	E
--	CBI Meeting Schedule – 9-9-1515, 3 pages	E
--	Weekly Site Safety Units 2 and 3 Report 9-21-15 28 pages	E
--	VCSummer Supply Chain Management Org Chart 9-21-15, 1 page	E
--	VCSumer Plan of the Day 9-21-15, 26 pages	E
--	Turbine Building Pipe Summary - Large and Small Bore 1-3-12, 1 page	E
--	Backfill Plan for Nuclear Island, 2 pages	E
--	Aux Building Elevations, 20 pages	E
--	9-21-15 Module Discussion Attendance Sheet, 9/21/15,1 page	E
--	VCS Modules Meeting - 9-15-154 pages	E
--	4-Box Report - Modules - 9-15-15, 42 pages	E
--	VC Summer Plan of the Day 9-22-15, 36 pages	E
--	VC Summer P6 database structure, 1 page	E
--	VC Summer P6 Info, 12 pages	E
--	SCEG Personnel Reporting Up Through Ron Jones, 2 pages	E
--	Construction Performance Meeting 9-13-15, 31 pages	E
--	Org Chart - Confidential - Do Not Share Outside Bechtel, 1 page	E
--	9-14-15 LAR 30 & LAR 111 Schedule, 4 pages	E
--	9-15-15 McIntyre Email on CAP and DCP Status, 2 pages	E
--	9-15-15 ITAAC Letter, 3 pages	E
--	9-17-15 U3 Overview Schedule, 1 page	E
--	9-17-15 U2 Overview Schedule, 1 page	E
--	9-17-15 Monthly Meeting Action Items List, 19 pages	E
--	9-17-15 Monthly Meeting Agenda, 1 page	E
--	2015 09 22 - Bechtel Assessment - Document Request - Tracking Document, 17 pages	E
--	2015 09 22 - Bechtel Assessment - Document Request - Tracking Document (3), 17 pages	E
--	2015 09 04 - Bechtel Assessment - Document Request - Tracking Document-Rev 1 – SG, 17 pages	E
--	2015 08 24 - Bechtel Assessment - Document Request - Tracking Document, 12 pages	E

Table A-1. Documents Reviewed During the Assessment		
No.	Description	Hard Copy (HC) or Electronic (E)
--	2015 08 18 - Bechtel Assessment - Document Request - Tracking Document, 11 pages	E
--	Bechtel Assessment of V. C. Summer Units 2 & 3 - 8-12-15 Supplemental Request for Schedule Related Information, 2 pages	E
--	2015 08 03 - Bechtel Assessment - Document Request - 8-7-15 Comments, 16 pages	E
--	VCS Document Request List, 2 pages	E
--	2015 09 23 - Bechtel Assessment - Document Request - Tracking Document, 17 pages	E
--	VC Summer aerial photo taken 6-30-15, 1 page	E
--	WEC Engineering Status Meeting 9-25-15, 1 page	E
--	WEC Engineering Follow-up Meeting 9-28-15, 1 page	E
--	VC Summer Plan of the Day 9-24-15, 38 pages	E
--	Work Control Document Control Mtg 9-24-15, 1 page	E
--	VC Summer Plan of the Day 9-23-15, 35 pages	E
--	VCS Schedule – Bab Follow, 45 pages	E
--	VCS Schedule – Engineering Milestones (Gap file), 123 pages	E
--	VCS Schedule – Fab Follow, 48 pages	E
--	VC Summer aerial phot taken 6-30-15, 1 page	E
--	VCS Module Q240, 2 pages	E
--	VCS Module Q233, 3 pages	E
--	VCS Module CA36, 2 pages	E
--	VCS Modules, 7 pages	E
--	VCS - Ctmt Elev 084, 116 pages	E
--	VCS - Ctmt Elev 084 (WBS), 12 pages	E
--	VCS Level 2 - Construction Schedule, 23 pages	E
--	VCS Schedule - Module Assembly Detail, 199 pages	E
--	VCS Schedule - Module Assembly, 8/30/15,163 pages	E
--	VCS Schedule - Testing & Startup Detail, 1289 pages	E
--	VCS Schedule - Testing & Startup Summary, 8/30/15, 8 pages	E
--	VCS Schedule - Construction Site Prep Summary, 3 pages	E
--	VCS Schedule - Construction Site Prep Detail, 233	E
--	VCS Schedule - Testing & Startup, 8/30/15,12 pages	E
--	VCS Schedule - Construction Site Prep, 276 pages	E
--	EDCR-Bechtel Request 10-1-15, 10 pages	E
--	EDCR-Bechtel Request 10-1-15, 7 pages	E
--	VC Summer Plan of the Day 10-7-15, 32 pages	E
--	CBI EDCR Report 10/2/2015, 14 pages	E

Table A-1. Documents Reviewed During the Assessment		
No.	Description	Hard Copy (HC) or Electronic (E)
--	CBI EDCR Report 10/2/2015, 15 pages	E
--	2015 09 30 - Bechtel Assessment - Document Request - Tracking Document, 9/30/15,19 pages	E
--	2015 10 02 Rev1 - Bechtel Assessment - Document Request - Tracking Document, 10/2/15,20 pages	E
--	2015 10 08 - Bechtel Assessment - Document Request - Tracking Document, 10/9/15,37 pages	E
--	VC Summer Plan of the Day, September 29, 2015, 40 pages, PowerPoint 8.5 X 11	HC
--	Civil Generic Guidance Open Items, 12 pages, 11X17	E
--	Straightening Studs, email, 10-13-15, 5 pages, 8.5 X 11	E
--	Non-manual Turnover Rate, email, 10-12-15, 3 pages, 8.5 X 11	E
--	Email Drawings required for Electrical cable tray support, Kelly to Matthews, 9-24-15	E
--	Annex Building Cable Tray Support Area 1, EL. 100'-0" APP-4031-SH-E002, Dwg No APP-4031-WF-E002	HC
--	Annex Building Cable Tray Support Area 1, EL. 100'-0" APP-4031-SH-E002, Dwg No APP-4031-VF-E900	HC
--	Annex Building Cable Tray Support Location Plan Area 1 & Area 4 EL 100'-0" Sheet 3 0f 3, Dwg No APP-4031-SH-014	HC
--	Fabrication Requirements Cope Tray Supports Seismic Category III Trapeze Rod Support Detail, Dwg No APP-SH27-VF-201	HC
--	Annex Building – Area 1 Supplemental Steel Plan @ EL 117-6", Dwg No APP-4041-SA-002	HC
--	Annex Building Cable Tray Support List & Fabrication Details, Area 1 & Area 4, EL 100'-0" SH 3 of 3, Dwg No APP-4031-SHX-01401	HC
--	Annex Building Cable Tray Support List & Fabrication Details Area 1, EL 100'-0" SH 1 of 3, Dwg No APP-4031-SHX-01201	HC
--	Annex Building Cable Tray Support List & Fabrication Details Area 1, EL. 100'-0" SH 2 of 3, Dwg No APP-4031-SHX-01301	HC
--	Annex Building – Area 1 Supplemental Steel Plan @ EL. 117'-6", Dwg No APP-4041-SA-001, 1 page,	HC
--	Annex Building – Area 4 Structural Steel Roof Framing Plan Elevation 117'-1 ½" (LP), Dwg No APP-4044-SS-001, Dwg No APP-4044-SS-001	HC
--	Annex Building – Area 1 Steel Framing Plan @ EL. 117'-6", Dwg No APP-4041-SS-001, 1 page, 11X17	HC
--	CBI Daily Force Report, 10/12/2015, 1 page, 8.5 X 11	E
--	CBI Daily Report, 10/12/2015, 3 pages, 8.5 X 11	E
--	VC Summer Plan of the Day, October 13, 2015, 33 pages, 8.5 X 11	E
--	Document Complexity N-Type EDCRs 10-15-15, 2 pages, 8.5X11	E

Appendix B

Assessment Team Resumes

NUCLEAR, SECURITY & ENVIRONMENTAL

Richard L. Miller

Manager of Operations
Assessment Team Leader

Technical Qualifications

- Senior Reactor Operator's License No. 20411

Education

- Executive Management Certificate, Vanderbilt University
- B.S., Mechanical Engineering, North Carolina State University

Memberships

- Member, American Nuclear Society Board, Operations and Power Division
- Member, American Nuclear Society

Dick Miller is a degreed mechanical engineer with over 38 years of nuclear engineering, construction, and project management experience. Currently he is the Operations Manager for Nuclear Power, responsible for the successful execution of Bechtel's nuclear power projects worldwide, as well as leading a senior executive team performing an assessment of the status of the V.C. Summer Units 2 & 3 new builds. He has unparalleled experience as a project manager, overseeing numerous highly successful Steam Generator and Reactor Pressure Vessel Replacement (SGR/RPVHR) projects, including the world record for shortest duration at Comanche Peak Unit 1 and the Ginna SGR, which was the first to use the "through-the-dome" methodology. He is an enthusiastic, committed leader who focuses on providing executive oversight, technical guidance for the successful planning and implementation of projects, and close collaboration between clients and Bechtel to ensure project success. Prior to joining Bechtel, Dick worked for a southeast electric utility at one of the company's nuclear power plants, holding a senior reactor operator's license and managing the utility's maintenance department. Since joining Bechtel, Dick has spent the majority of his career on field assignments across the United States, managing or directing over 20 major modification projects at nuclear power facilities.

Manager of Operations, Nuclear Power

2014–Present: Mr. Miller is responsible for all nuclear projects and services worldwide, as well as the development of new opportunities both domestic and foreign, including the completion of Watts Bar Unit 2 and the Davis-Besse SGR and Wolf Creek Pipe Replacement projects, as well as the commencement of the Beaver Valley Unit 2 SGR. Currently, he is leading a senior executive team performing an assessment study of the status, challenges, and opportunities of the new build AP1000 units at V.C. Summer for the owner.

Senior Project Director, Nuclear Power, Bechtel Power Corporation

2011–2014: Mr. Miller was responsible for the successful implementation of nuclear power projects, including the NextEra EPUs, as well as proposal development and client communications. He also managed Bechtel's efforts related to the Fukushima incident, including staffing and sponsorship of Bechtel employees on the Fukushima Industry Support Team in Tokyo and representation of Bechtel in Tokyo during business development efforts. In addition, he oversaw the Crystal River Unit 3 Containment Repair Project, including management of the Phase 1 engineering and development effort and EPC contract negotiations.

Senior Project Director/Project Manager, SONGS SGR, Bechtel Power Corp.

2010–2011: Mr. Miller was responsible for the successful completion of the SONGS Unit 3 lump-sum SGR, which was completed within budget and ahead of schedule.

Senior Project Director, Nuclear Power, Bechtel Power Corp.

2007–2010: Mr. Miller was responsible for proposal development activities and contract negotiations for numerous SGR, RPVHR, and EPU projects. Significantly, he oversaw the negotiation and implementation of the NextEra Fleet EPU Project, a major multi-billion dollar effort to perform EPUs on six units (Point Beach 1 & 2, St. Lucie 1 & 2, and Turkey Point 3 & 4). This project earned the Business Development Project of the Year Award for the entire Bechtel Corporation.

Senior Project Manager, Beaver Valley Unit 1 SGR/RPVHR and Comanche Peak Unit 1 SGR, Bechtel Power Corp.

2004–2007: Mr. Miller was responsible for the successful completion of the SGR/RPVHR project for FirstEnergy's Beaver Valley Unit 1. This project was named runner-up for Pennwell's Project of the Year at

the Power Generation Conference. As PM for Comanche Peak Unit 1, he led the team that set the world record for shortest schedule of a SGR, and this project was named runner-up for Bechtel's Project of the Year.

Senior Project Manager, Davis-Besse, North Anna, and Surry RPVHRs, Bechtel Power Corp.

2002–2003: Mr. Miller was responsible for the successful execution of head replacement projects at North Anna Units 1 and 2, Surry Units 1 and 2, and Davis-Besse.

Operations Manager, Nuclear Power, Bechtel Power Corp.

2000–2002: Mr. Miller was responsible for the major modification operations of Bechtel's nuclear power business line, and he oversaw the successful completion of the Kewaunee and South Texas Project Unit 2 SGRs. In addition, during this time he took over as Project Manager to complete the D.C. Cook SGR. He was also responsible for the completion of the commercial closeout of the Arkansas Nuclear One Unit 1 SGR.

Manager of Decommissioning, Bechtel Power Corp.

1998–2000: Mr. Miller was responsible for the decontamination and decommissioning business line activities, including Connecticut Yankee and SONGS 1 Large Component Removal.

Project Manager, Tihange Unit 3 SGR

1997–1998: Mr. Miller was responsible, as a self-employed project management consultant, for the management of the Tihange SGR in Belgium.

Project Manager, LaSalle Modifications, Bechtel Power Corp.

1996–1997: Mr. Miller was responsible for the management and installation of modifications at the LaSalle nuclear plant.

Project Manager, Ginna SGR, Bechtel Power Corp.

1993–1996: Mr. Miller was responsible for the management and implementation of the lump sum EPC contract for Ginna's SGR. Additionally, he served as Proposal Manager for several lump sum SGR and major modification proposals.

Project Manager, North Anna Unit 1 SGR, Bechtel Power Corp.

1990–1993: Mr. Miller was responsible for the management and implementation of the lump sum EPC contract for North Anna 1's SGR.

Deputy Project Manager, Indian Point Unit 3 SGR, Bechtel Power Corp. and Manager, Bechtel-KWU Alliance

1988–1990: Mr. Miller assisted the implementation of the Indian Point 3 SGR, as well as prepared proposals and managed awarded conceptual studies for other SGRs and major modifications. Additionally, he was responsible for the Bechtel-KWU Alliance activities.

Senior Reactor Operator/Maintenance Supervisor/Principal Engineer, H.B. Robinson Nuclear Power Plant

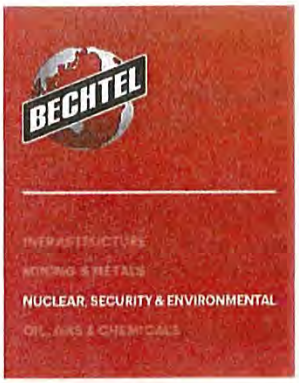
1979–1988: Mr. Miller served as Principal Engineer at H.B. Robinson, during which time a SGR was performed, as well as serving as Outage Manager for refueling outages and Maintenance Supervisor for mechanical maintenance. Additionally, he received his Senior Reactor Operator License and authored the Outage Management Manual, the nuclear industry's first, which received an INPO Good Practice award.

Field Service Engineer, Westinghouse Electric Corp.

1977–1979: Mr. Miller was responsible for the erection and inspection of equipment at numerous nuclear power plants under construction.

U.S. Marine Corps, E-5

1971–1973: Mr. Miller received an honorable discharge in 1973.



Carl W. Rau

Executive Sponsor

Over his 44 year Bechtel career, Carl has served various business lines and corporate functions in project management and executive leadership roles. He is a true leader with unmatched mega-project construction experience that ranges from nuclear power plants to industrial facilities. He also brings an international perspective from his roles overseeing projects around the globe, as well as a thorough understanding of the commercial aspects of large project development and execution. Additionally, he has a broad knowledge of effective and proven processes and procedures, along with a unique ability to motivate those around him.

Education

- AA, Civil Engineering, Penn State University
- Certificate, Business Management, California Coast University

Manager, Special Projects, Bechtel

2012–2015: Mr. Rau served in an executive position leading specialized projects and studies in support of Bechtel's Nuclear, Security, and Environmental and Infrastructure global business units.

President, Nuclear Power

2008–2012: Mr. Rau led the Nuclear Power business line, managing all of Bechtel's global nuclear power activities, including project development, execution, and services. During his tenure, he oversaw numerous project awards and successful executions which significantly grew the nuclear power portfolio, including extended power uprates on six units, steam generator replacements, Watts Bar Unit 2 completion, engineering services at multiple plants, and permitting, licensing, and design for advanced reactor projects.

Manager of EPC Functions, Bechtel Group

2006–2008: Mr. Rau was responsible for all the functional departments of the Bechtel group of companies, ensuring that all world-wide projects and corporate functions were appropriately staffed and processes / procedures were followed.

Executive Vice President – London Operations for Oil, Gas & Chemicals (OG&C)

2005–2006: In this capacity, Mr. Rau oversaw OG&C's London office and Center of Excellence, which was responsible for executing, deploying personnel, and providing technical support for the OG&C global business unit's operations in Europe, Africa, the Middle East, and Asia.

President, Bechtel Infrastructure Corporation (BINFRA)

2004–2005: As BINFRA President, Mr. Rau was responsible for planning, executing, and managing civil infrastructure projects in North and South America, supporting both public and private sector customers.

Executive Vice President, Bechtel Systems & Infrastructure, Inc. (BSII)

2003–2004: Mr. Rau was responsible for the oversight of Bechtel's U.S. Government business, primarily with the Department of Energy and the Department of Defense, specializing in large, complex projects in the areas of defense, space, energy, national security, and the environment.

Manager of Central Functions, Bechtel Group

2002–2003: Mr. Rau was responsible for all the functional departments of the Bechtel group of companies, ensuring that all world-wide projects and corporate functions were appropriately staffed and processes / procedures were followed.

Frederick Execution Unit Manager, Bechtel Power and BSII

2000–2002: Mr. Rau was responsible for all personnel at the Frederick, Maryland Execution Unit office and Center of Excellence, which was responsible for winning and executing work for both the power and government services business units. In 2000, he was elected Senior Vice President.

Corporate Manager of Construction and President of Bechtel Construction Operations Incorporated (BCOI)

1999–2000: Mr. Rau was responsible for all construction personnel world-wide in the Bechtel group of companies, as well as construction execution through BCOI.

Manager of Operations, Europe, Africa, and Middle East

1998–1999: In this capacity, Mr. Rau ensured the effective execution of all Bechtel projects underway in Europe, Africa, and the Middle East, as well as providing support for Bechtel businesses and business development efforts.

Project Director, Dabhol Power Station Project

1999–1999: During his tenure as Manager of Operations, Mr. Rau served as the Project Director for the Bechtel/GE consortium that performed EPCS services for this 2,240 MW combined cycle power project in India (at the time the largest foreign investment in India).

Project Director, Jamnagar Refinery Project

1997–1998: Mr. Rau led the effort to design, build, and commission this massive refinery complex (the largest in the world), which covers 7,500 acres and consists of manufacturing and allied facilities, utilities, off-sites, port facilities, and housing for 2,500 employees. In 1998, he was elected a Principal Vice President.

Manager of Power Operations, Europe, Africa, and Middle East

1996–1997: Mr. Rau ensured the effective execution of all Bechtel power projects underway in Europe, Africa, and the Middle East, as well as providing support for Bechtel businesses and business development efforts.

Executive Assistant to the President, Bechtel Power

1994–1996: Mr. Rau supported the President of Bechtel Power to ensure the effective execution of projects, handling both technical and commercial issues, as well as business development efforts and customer engagement.

Manager of Power Operations, South Korea

1993–1994: Mr. Rau ensured the effective execution of all Bechtel power projects underway in South Korea, as well as providing support for Bechtel businesses and business development efforts.

Project Manager, Comanche Peak 1 & 2 Completion Project

1989–1993: Mr. Rau began as the Project Completion Manager of Comanche Peak 1 nuclear power station, which Bechtel took over from the previous contractor who had failed to complete the project. He was then seconded to the utility owner's organization and was responsible for planning and executing the Unit 2 completion. He successfully led both units to completion, as well as serving as an expert witness for Unit 2 rate case on behalf of the utility.

Mechanical Discipline Manager/Project Completion Manager, Vogtle Nuclear Generating Station

1985–1989: Mr. Rau was responsible for all mechanical work, including management of contractors. This included responsibility for piping, reactor internals, insulation, turbine erection, and fire protection system installation. He supervised a Georgia Power mechanical discipline organization of 2,000 non-manual employees and functioned as Bechtel's senior construction representative responsible for 100+ construction engineers in all disciplines.

Various Field Roles, Nuclear Power Projects

1971–1985: Mr. Rau served in a variety of nuclear power plant construction field roles for Bechtel, including:

- System Completion Manager/Lead Piping Superintendent/Drywell CRD Area Superintendent/HVAC Coordinator — Hope Creek Generating Station
- Lead Piping Superintendent/Piping Superintendent/Assistant Project Field Engineer/Startup Superintendent/ Lead Piping/Mechanical Engineer/Area III Lead Piping Engineer — Susquehanna Steam Electric Station
- Civil Field Engineer — Calvert Cliffs Nuclear Power Plant

Construction Engineer, U.S. Steel Corporation

1968–1971: Mr. Rau served as the survey crew party chief responsible for all field control and construction surveys, as well as a field engineer responsible for all aspects of construction at the soaking facility.

BECHTEL

NUCLEAR, SECURITY & ENVIRONMENTAL

Ronald L. Beck

Project Manager
(Engineering and Construction)

Ron Beck has spent his entire career in the nuclear power industry. He has a strong civil engineering background and many years of design engineering and field experience, with a solid foundation in the details of work planning and execution. He was project manager for three steam generator replacement (SGR) projects, assistant project manager for one SGR project, and shift outage manager for two reactor vessel head replacement (RVHR) projects. His background also includes civil design work on Grand Gulf, South Texas Project, and Watts Bar. He is a highly dedicated leader with strong technical skills, effective management capabilities, and the ability to motivate teams to successful outcomes.

Technical Qualifications

- Over 43 years of nuclear experience, including 17 in design engineering and licensing, 18 on SGR and RVHR projects, and 5 in next-generation nuclear (EPR, SMR) project management
- Registered Professional Engineer in Maryland (retired); inactive in Mississippi, South Carolina, Tennessee, Texas, and Virginia
- Member of ASCE, ASME
- Author of several published technical papers (available on request)

Education

- ME, Civil Engineering, Virginia Polytechnic Institute (Structural Engineering Major)
- BS, Civil Engineering, Virginia Polytechnic Institute
- Bechtel Certification, Project Manager Level II

Project Manager, Generation mPower Small Modular Reactor

2011–Present: For the Generation mPower (GmP) small modular reactor (SMR) project, Mr. Beck has been responsible for all aspects of Bechtel's scope and project execution and for interface with Generation mPower LLC and Babcock & Wilcox (B&W), as well as potential customers, Industry Advisory Council members, management committee members, and regulatory agencies. His responsibilities include overall management of 230+ professionals, including engineering, licensing, project cost and schedule, procurement and contract functions.

Project Engineering Manager, Generation mPower Small Modular Reactor

2010: For the GmP project, Mr. Beck managed the Bechtel engineering team and the integration of Bechtel's scope with B&W's Nuclear Island scope.

Project Manager, Various Commercial Nuclear Projects

2010: Mr. Beck participated in a due diligence assessment as project manager, civil/structural reviewer, construction reviewer, and overall report preparer. The report outlined the results of the assessment regarding investing in a specific new generation nuclear technology.

2008–2010: Mr. Beck was the responsible project manager for the Bell Bend US EPR nuclear power plant project. He supported AREVA's preparation of responses to the NRC's requests for additional information in conjunction with the design certification process; managed an optimization study; participated in construction schedule development; worked with customer on updating the site utilities plot plan for its Combined License application; and oversaw the development of budgets, schedules, and reports.

2008: Mr. Beck oversaw the development of the long-range strategic plan for the SONGS SGR project. The work involved developing the pre-outage schedule encompassing Bechtel's work from 2008 through 2010 and the Cycle 15 and Cycle 16 (SGR) outage schedules for Bechtel's work and integrating these schedules into the client's online and outage work schedules.

2007: For the Palo Verde Nuclear Generating Station Unit 1 SGR project, Mr. Beck managed all aspects of removing and relocating the V651 valve in the reactor coolant system ASME Class 1 shutdown cooling line to support long-term plant operability and reliability.

2006–2007: As plan coordinator for the SONGS SGR project, Mr. Beck managed the development and submittal to the client of 50-plus management, engineering, and construction plans and 30-plus specific contract deliverables describing the methods and approaches Bechtel would employ to execute its SGR work scope. He also supported the project manager on project commercial and technical issues.

2005: For the Palo Verde Unit 3 SGR project, Mr. Beck managed the installation of a vortex elimination plate in the reactor coolant system ASME Class 1 shutdown cooling line. The plate was later removed as a result of system testing.

2004–2005: Mr. Beck managed or supported proposals for the Turkey Point Units 3 and 4 and St. Lucie Units 1 and 2 RVHR projects; the Crystal River Unit 3 SGR project; the Bruce A Units 1, 2, 3, and 4 SGR projects; the Diablo Canyon Units 1 and 2 SGR projects; the SONGS Units 3 and 4 SGR projects; the SONGS Units 2 and 3 and Palo Verde Units 1, 2, and 3 RVHR studies; and the Palisades RVHR project.

Shift Outage Manager, Surry Unit 1 Reactor Pressure Vessel Head Replacement (RPVHR)

2003: For the Surry Power Station Units 1 and 2 RPVHR project, Mr. Beck interfaced with client, subcontractor, and Bechtel personnel to develop the schedule; attended client/Bechtel plan-of-the-day meetings; interfaced with client and Bechtel personnel on day-to-day operations, including action item meetings and task reviews; and managed Bechtel's day shift containment work during each unit's replacement outages.

Project Manager, Various Steam Generator and Reactor Pressure Vessel Head Replacements

2002: Mr. Beck managed several SGR project proposals, an RPVHR project study for two nuclear units, and an independent third-party SGR project cost estimate study review for a nuclear utility.

1996–2001: For the South Texas Unit 1 (1996–2000) and Shearon Harris (2000–2001) SGR projects, Mr. Beck had the same duties as for the V.C. Summer SGR project.

1995–1996: Mr. Beck developed generic SGR project core team operations and was a member of the team that developed a Bechtel/Westinghouse teaming agreement for SGR projects. He also developed competitively bid SGR projects and sole-source negotiated SGR awards, including the first South Texas Unit 1 SGR involving the Bechtel/Westinghouse agreement.

1992–1994: For the V.C. Summer SGR project, Mr. Beck directed all aspects of engineering, construction, procurement, quality assurance, fixed price cos, and schedule management and subcontractor interface; coordinated interfaces with the client and interfaced with Bechtel senior management, global and regional industry unit and execution unit management, and home office functional departments. During the SGR outage, Mr. Beck oversaw all aspects of the on-site construction activities and managed the development of the Bechtel portion of the outage schedule.

1991–1992: For the ASCO Units 1 and 2 SGR project, Mr. Beck managed photogrammetry and interference walkdowns, the redesign of the biological shield wall, preparation of the technical specification, and technical evaluation of replacement steam generator fabrication proposals. He also managed SGR studies for St. Lucie Unit 1 and for Mitsubishi Heavy Industries, Ltd. in Japan.

Assistant Project Manager, Palisades Steam Generator Replacement Project

1989–1991: For the Palisades SGR project, Mr. Beck provided management overview of the engineering team and management support to the cost and schedule supervisor for schedule and budget control. He assisted in coordinating Bechtel's client interface on licensing and other high priority issues and coordinated the development of the SGR outage schedule with the SGR project team (management, engineering, construction, procurement, subcontractors, and client). As night shift outage coordinator during the replacement outage, he coordinated Bechtel's night shift construction activities with the client and the client's contractors. During job closeout, he assisted the project manager and field services manager with closeout activities, including engineering as-built package completion, contract compliance closeout, outage work activity completion, and licensing and quality assurance review closeout.

Project Engineering Manager, Watts Bar Unit 1

1987–1989: Mr. Beck was the Project Engineering Manager for the Hanger and Analysis Update Program for Watts Bar Nuclear Station Unit 1. In this capacity, he oversaw all design activities associated with the update of the Watts Bar pipe stress analyses and pipe support designs, using a site walkdown team and design teams located in Oak Ridge, TN; Gaithersburg, MD; Houston, TX and San Francisco, CA.

Project Engineer, South Texas Project Completion

1986–1987: For the South Texas Units 1 and 2 project, Mr. Beck supported the civil/ structural, pipe stress and pipe support, architectural, and plant design layout discipline design activities. He directly interfaced with the client in completing engineering design, licensing, and engineering assurance activities associated with these disciplines. He also assisted in managing the contractual and legal aspects of the project's main cooling reservoir; coordinated interfaces with the project's constructor and client and Bechtel management; and directed the coordination of engineering activities associated with Unit 1 hot functional testing, including development of engineering hot functional test procedures for thermal and vibration monitoring.

Design Engineer/Group Leader/Engineering Supervisor, Grand Gulf Units 1 & 2

1972–1985: Initially, Mr. Beck developed various preliminary design studies subsequently used for input to the PSAR and to project cost and final design studies. He reviewed cooling tower structural design calculations, wrote and administered a subcontract for cooling tower foundation piling installation, and wrote piping technical specifications. Later he supported various site engineering tasks and completion of final ultimate heat sink basin structural designs and assisted in managing group design activities. Subsequently, he led the design activities associated with the reactor containment building (RCB) and site and managed a specialized task force performing dynamic loading analysis of the BWR Mark III RCB. He supervised development of the FSAR sections associated with the RCB and other Seismic Category I site facilities. He participated in regulatory hearings with the NRC and the Advisory Committee on Reactor Safeguards in conjunction with the RCB dynamic analyses and assisting in supervising civil/ structural design activities. Ultimately, he was responsible for all civil/structural engineering design activities associated with Unit 2.

NUCLEAR, SECURITY & ENVIRONMENTAL

Jonathon D. Burstein

Project Controls Manager

Education

- M.S., Construction Management, Virginia Tech University
- B.S., Civil Engineering, Virginia Tech University

Jonathon Burstein has over 11 years of cost engineering, planning, and scheduling experience, primarily on nuclear projects throughout the United States. He is well-versed in all aspects of project cost management, including budgeting, monitoring, and controlling cost. He has also developed and maintained project outage construction schedules and monitored critical path. Currently, he is responsible for managing project controls for the Beaver Valley Unit 2 Steam Generator Replacement (SGR) Project and prior to that, he spent 5 years on the Watts Bar 2 Completion Project.

Project Controls Manager, Beaver Valley Unit 2 Steam Generator Replacement Project

2013–Present: Mr. Burstein manages the project controls team to monitor and control cost and schedule for the project, and is part of the project management team to help the Project Manager make informed decisions. Mr. Burstein developed the project controls plan and established tools for successful project execution. He also facilitated cross-training of cost and schedule personnel to further develop their skills. The team is currently managing cost and schedule for the engineering effort, with construction planning and support for Unit 2 outages.

2015: While managing project controls for Beaver Valley, Mr. Burstein also provided planning and cost support to new proposals for nuclear work, steam generator replacement projects, and combined cycle projects. Additionally, he provided planning support to a front-end assessment study for new nuclear construction work.

Construction Cost Supervisor, Watts Bar Unit 2 Completion Project

2012–2013: Mr. Burstein supervised a group of up to 6 employees to manage construction costs. Group responsibilities included: daily craft hours monitoring, weekly QURR reporting and analysis, oversight of quantity reporting database, budget maintenance, trend initiation, and various interfaces with the construction organization. He also continued to perform the financial responsibilities listed below, such as PFSR, CWA's, and project budget monitoring.

Cost Engineer – Financials/Craft, Watts Bar Unit 2 Completion Project

2010–2012: Mr. Burstein monitored the overall financial status of project, generated quarterly contract work authorizations (CWAs) for project funding and quarterly project financial status reports (PFSRs) for management, monitored actual expenditures against the project budget and forecast, and initiated construction trends as identified by cost tools. He generated monthly project reports for functional support to Frederick (project status reports, staffing, and gross margin) and provided other functional support as requested. He also supported craft cost controls as described below.

Cost Engineer – Craft, Watts Bar Unit 2 Completion Project

2008–2010: Mr. Burstein maintained labor cost codes and monitored labor charges in eTrack, maintained budgets and incorporated new work order estimates in ePC Works (a tool for budgeting, monitoring, and controlling all aspects of cost for major Bechtel projects), and performed craft jobhour analysis. In addition, he generated weekly quantity unit rate report (QURR) and other reports as required, created quantity reporting database so that the field engineer could enter weekly quantities, and trained others in use of these systems.

Area Scheduler, Watts Bar Unit 2 Completion Project

2008–2008: Mr. Burstein developed field engineering walkdown schedules and tracking tools and developed and maintained detailed construction schedules. He also acted as interim lead construction scheduler for a period of 2 months

Field Planner, Palo Verde Unit 3 Steam Generator Replacement Project

2007–2007: Mr. Burstein developed and maintained project outage construction schedules as the lead planner on day shift. He prepared daily reports for project status, manpower tracking, jobhour earnings, and critical path analysis and trained new planners on SGR scope, planning, and reporting.

Field Planner, Comanche Peak Steam Generator/Reactor Head Replacement Project

2006–2006: Mr. Burstein developed and maintained project outage construction schedules. Work included coordinating steam generator replacement project work activities, preparing daily reports for project status, manpower tracking, jobhour earnings, and critical path analysis, and he cross-trained with the Cost group on craft staffing, subcontracts, and work breakdown structure (WBS) tracking.

Field Planner, Palo Verde Unit 3 N-1 Outage

2006–2006: Mr. Burstein maintained project outage construction schedules as the backshift planner and assisted in schedule development for the Unit 1 valve modification.

Planner, Comanche Peak Steam Generator/Reactor Head Replacement Project

2006–2006: Mr. Burstein maintained project engineering schedule and developed project pre-outage construction schedule, prepared weekly status reports and monthly engineering progress and performance report (EPPR), assisted various projects with schedule maintenance, and worked part-time with AREVA New-Gen to develop engineering schedules.

Field Planner, Palo Verde Unit 1 Steam Generator Replacement Project

2005–2005: Mr. Burstein participated in vertical slice reviews for schedule development. Maintained project outage construction schedules and monitored critical path.

Planner, Central Planning Group

2005–2005: In this assignment, Mr. Burstein assembled proposal schedules and updated various project schedules as needed.

Intern, Miami International Airport Expansion

2004–2004: Mr. Burstein set up and maintained database for tracking and reporting work orders and created project cost and scheduling reports for project management

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NUCLEAR, SECURITY & ENVIRONMENTAL

Robert A. Exton

Procurement & Contracts Operations Manager

Technical Qualifications

- Member, Original Lifetime Certified Purchasing Manager, Institute for Supply Management
- Bechtel Certification–Procurement Manager

Education

- B.S., Business Administration with Emphasis in General Management, Humboldt State University
- A.S., Forestry Science, North Dakota State University

Bob Exton, Procurement & Contracts Operations Manager for Nuclear Power, has 37 years of procurement experience working on nuclear, fossil, and telecommunications projects, with over half of that time in the nuclear power generation arena. He has held positions of increasing responsibility in various procurement managerial positions, including material management, purchasing and contracts formation, management, and commercial leadership.

Procurement & Contracts Operations Manager, Nuclear Power

2008–Present: In his current role, Mr. Exton is responsible for managing and monitoring procurement and contracts operations for all commercial nuclear projects. His main focus the past year has been the functional oversight of ongoing nuclear projects and proposal efforts, drawing upon past experience, lessons learned, and the Six Sigma philosophy. Additional focus has been on process improvement and procedures directly associated with commercial nuclear activity.

Program Procurement Manager and Deputy Program Procurement Manager, Cingular Wireless Project and the AWS Project

2002–2008: Mr. Exton was responsible for the procurement operations of these telecommunication projects, focusing on Materials Management. He was also responsible for the integration of the AWS project to the Cingular system and for ongoing procurement operations in support of the nationwide build program. This build program included eight markets with a staff of twenty, including material coordinators and a purchasing group.

Proposal Manager, Power Multi-Project Acquisition Group (MPAG)

2000–2002: Mr. Exton was involved with all proposal efforts for power projects and was the primary representative on project development teams assuring that Procurement supported the development schedule.

MPAG Commercial Lead, Balance of Plant and Electrical

2000–2000: Mr. Exton was responsible for managing and coordinating the buying activities in support of the power projects executed from the Power center of excellence.

Project Procurement Manager, Aleppo, Quezon, and Dabhol Projects/Nuclear Operations

1991–2000: Mr. Exton was responsible for developing, negotiating, and administering purchase orders and subcontracts for three fossil power projects in the Middle East and Asia. On the Aleppo Project, Mr. Exton was responsible for final equipment buyouts, expediting, inspection, traffic and logistics and shipment of remaining equipment and services.

Additionally, was involved in the development of new power plant construction projects.

In his Nuclear Operations role, Mr. Exton was responsible for coordinating procurement activities associated with North Anna Unit 1 SGR, V.C. Summer SGR, and FURNAS project and for the issuance and administration of major lump sum subcontracts.

Senior Contracts/Purchases Supervisor Specialist, Palisades Steam Generator Replacement

1989–1991: Mr. Exton was responsible for negotiating and issuing major lump sum subcontracts and purchase orders.

Contracts/Purchases Supervisor Specialist, Limerick Nuclear Project

1987–1989: Mr. Exton was responsible for coordinating purchasing activities, administering assigned blanket orders, and supervising closeout of home office contracts and field purchase orders.

Contracts/Purchases Supervisor/Specialist Buyer/Spare Parts Supervisor/Warehouse Receiving Supervisor, Palo Verde Nuclear Project

1978–1987: Mr. Exton was responsible for assisting in forecast planning, conducting training on procedures, and reporting progress to the client and engineering.

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INFRASTRUCTURE
MINING & METALS
NUCLEAR, SECURITY & ENVIRONMENTAL
OIL, GAS & CHEMICALS

Jason S. Moore

Project Controls Manager

Jason Moore has 17 years of project controls experience in the power generation construction industry, with well-rounded expertise in planning, construction, cost, estimating/proposal development, and subcontracts for both nuclear and fossil power plants. For the past 6 years, he has had positions of increasing responsibility on large-scale nuclear power projects, culminating in his current role as Project Controls Manager for Bechtel's on-going engineering services work at Southern Nuclear's three operating nuclear facilities in Georgia and Alabama.

Education

- B.S., Business Management & Finance, Salisbury State University

Project Controls Manager, Southern Nuclear Engineering Services Project

2013–Present: Currently, Mr. Moore is responsible for all cost- and schedule-related functions, initiating and implementing project controls tools and programs, and providing technical direction to project controls personnel on this project that provides engineering services to Southern's three operating nuclear plants (Farley, Hatch, and Vogtle).

Project Controls Manager, Wolf Creek Essential Service Water Buried Pipe Replacement Project

2011–2013: Mr. Moore was responsible for all cost- and schedule-related functions, initiating and implementing project controls tools and programs, and providing technical direction to project controls personnel on this project that replaced over 30,000 lineal feel of underground and underwater piping that was deteriorating at the Wolf Creek Nuclear Plant. He provided day-to-day supervision to project controls personnel and interfaced with all functional groups to ensure compliance with execution strategy and objectives. He also provided status information and related analysis to the project manager, project controls operations manager, and project team, as well as interfacing with customers, contractors, and other outside personnel. Additionally, Mr. Moore led specialized studies and provided other specialized support to project and functional management, as required.

Shift Outage Manager/Assistant Project Controls Manager, Turkey Point 3 & 4 Extended Power Uprate Project

2009–2011: While assigned to the Turkey Point EPU project, Mr. Moore held a number of positions of increasing responsibility including:

- Shift Outage Manager—responsible for managing the "team room" for a 43-day outage with a peak craft headcount of 300, reviewing, modifying and driving the project schedule through the nuclear outage, interfacing daily with the plant management team, removing obstacles, and finding quick solutions to daily challenges and issues.
- Assistant Project Controls Manager—responsible for decisions and financial reviews, developing senior management presentation material on multiple occasions for client reviews, chairing multiple client review sessions ranging from trends to Level 3 vertical reviews, personnel management of project, staffing decisions, and employee development, attaining more balanced perspective between the cost and schedule functions, and actively participating in financial development and reviews.
- Planning and Scheduling Supervisor—responsible for providing direct supervision to eight employees, serving as one of the leads driving the U3R25 outage including analysis-based redirection, major recovery planning, and "team room" staffing, developing unique tools to simplify a complex planning project that is now used at all customer project sites.
- Project Planner—Field and Engineering, responsible for presenting the Project Controls status at the Monthly Progress Report to customer senior management, and scheduling lead for all aspects of

schedule development including engineering, construction, procurement, subcontracts, startup, and customer schedule integration.

- Project Estimator—responsible for developing a plan to provide an estimate to customer for all the EPU projects along with all the templates required to complete the task in a short duration, conducting onsite working sessions/presentations at each of the customer's project sites, in which Level 1.5 schedules with associated resources were developed, with the results serving as the basis for all the EPU estimates. Mr. Moore presented the estimate to Bechtel customer senior management.

Project Planner, Midwest Generation Powerton Environmental Program Project

2008–2009: Mr. Moore's responsibilities included scheduling lead for all aspects of schedule development including engineering, construction, procurement, startup, client, and OEM partner schedule integration on this project to install an air quality control system on a dual unit coal-fired power plant. He worked directly with project management, client management, and OEM management developing all levels of schedule (Level I, II, III, IV), implementing the use of Primavera 6.0 on the project.

Project Planner, Sammis Air Quality Control System Retrofit Project

2008: Mr. Moore provided direction and training to the onsite planning staff on this 2,200 MW coal plant, facilitating communication between the Bechtel and Client organizations through interactive white-boarding schedule development sessions. He led the planning effort of the main transformer installation and its related outage, discovering and fixing issues as they arose. He also developed a new tracking report to be used by Bechtel and Client management that tracked real-time data in association with bulk piping installation.

Project Planner, Sutherland Project

2007–2008: Mr. Moore supported the development of the initial estimate and schedule for this proposed power project, developing a level II schedule and supporting documentation to successfully convey project schedule viability, and presenting the overall plan to the project team and leading discussions on its future development including risks and challenges.

Engineering Planner/Lead Planner, Oak Creek Expansion (Elm Road) Project

2004–2007: As Lead Planner on Elm Road, a 1,300 MW two-unit EPC new build coal-fired power plant, Mr. Moore was responsible for coordinating and issuing the critical action items and chairing the CAI meeting. He provided technical direction to the lead engineering planner and supported field personnel. He also led a number of special studies and 'what if' analyses, as directed by the Project Director. He participated in the rebaselining of the construction schedule, developed multiple detailed schedule tracking tools to better define project goals, provided important analysis regarding the timing of cable deliveries to take advantage of the future reduction in the market price of copper, and developed the first startup level 3 detailed schedule.

As Engineering Planner, Mr. Moore was responsible for maintaining the Level I, Level II, and Level III schedules, creating and maintaining bulk commodity curves for Engineering releases and the project short-term work plan, analyzing entire schedule network to avoid potential issues with project deliveries, leading procurement activities to ensure timely delivery of materials by establishing delivery dates for material requisition, reviewing cost estimates and trends for schedule impacts, and developing and maintaining the Engineering Progress & Performance Report and the Engineering dashboard.

Engineering Planner, Mountain View Combined Cycle Gas Turbine Project

2003–2004: Mr. Moore's responsibilities included developing and maintaining the Level I, Level II, and Level III schedules, bulk commodity curves for engineering releases, and the project short-term work plan. He was also responsible for analyzing the entire schedule network to avoid potential issues with project deliveries, leading procurement activities to ensure timely delivery of materials by establishing delivery dates for material requisition, reviewing cost estimates and trends for schedule impacts, and communicating the overall project schedule to the project and client management.

Proposal Planner, Bechtel Power Project Controls Central Function

2000–2003: Mr. Moore worked with business development managers and construction managers to assist in development of strategic positions of new proposals. He was responsible for developing the milestone summary schedules for management reviews during the proposal phase, developing Level II project schedules, developing and maintaining Level III P3 schedules, developing bulk curves and manpower curves, producing development schedules for pre-NTP phase and proposal phase, and maintaining comparison data for new proposals. Proposals ranged in value from $300 million to $3 Billion.

Indirect Estimator, Bechtel Power Estimating

1998–2000: Mr. Moore was responsible for developing craft wage rates, supporting the development of manual distributable costs, developing home office costs, tracking metrics for proposal costs and services estimates, gathering data for quantity and jobhour comparisons, supporting the preparation of proposal review packages, developing proposal cashflows and proposal profitability summaries, and preparing proposal pricing sheets.

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Robert E. Pedigo

Project Startup Manager

Technical Qualifications

- Registered Professional Engineer, Pennsylvania (Electrical) and Illinois (inactive)
- Six Sigma Black Belt

Education

- B.S., Electrical Engineering, Pennsylvania State University

Bob Pedigo is a seasoned Startup Manager with 39 years of increasing responsibilities both on projects and in functional management. He is a Bechtel Startup Subject Matter Expert, and his expertise includes plant startup and startup planning of systems and facilities, plant maintenance and reliability (nuclear, petrochemical, and industrial), procedure development, and multi-discipline organization coordination. In addition, he is a Six Sigma Black Belt who has successfully developed and implemented several startup process improvements.

Deputy Manager of Startup, Bechtel Oil, Gas & Chemicals (OG&C)

2014–Present: Mr. Pedigo is responsible for startup functional oversight of the OG&C global business unit projects in development and execution around the world.

Chief Startup Engineer, Bechtel OG&C

2013–2014: Mr. Pedigo was responsible for overseeing startup at multiple Liquefied Natural Gas (LNG) projects from the Houston OG&C headquarters.

Chief Startup Engineer, Bechtel Corporation

2011–2013: Mr. Pedigo was responsible for the continued development and revision of Bechtel's corporate Startup Procedures (content and configuration management) and the management of the corporate Startup Engineer Certification program and oversight of corporate startup records and archives. In addition, he served as a Startup Subject Matter Experts for several nuclear power and LNG projects.

Project Startup Manager, mPower Small Modular Reactor (SMR) and Calvert Cliffs Unit 3

2008–2011: On the mPower SMR project, Mr. Pedigo oversaw design input, program development, and early project planning during the development of the SMR design and execution planning. On Calvert Cliffs 3, he performed design input, program development, and early project planning for the US-EPR nuclear power reactor design that was proposed for the Calvert Cliffs site.

Assistant Manager of Startup, Bechtel OG&C

2004–2008: Mr. Pedigo assisted in startup functional oversight of OG&C projects in development and execution.

Six Sigma Black Belt, Bechtel Corporation

2003–2004: As one of the Six Sigma Black Belts, Mr. Pedigo successfully developed, completed, and implemented two Process Improvement Projects (PIPs), that improved Bechtel's process and procedures for Steam Line Cleaning and Chemical Cleaning. He also conducted Six Sigma awareness training and program audits throughout the company.

Project Support Supervisor, Bechtel Corporation

2000–2003: Mr. Pedigo's responsibilities included project development support (proposal estimating, schedule development, and execution philosophy input), project execution support, and startup execution philosophy research and development for projects mainly in the Power and Government Services sectors.

Lead Startup Engineer, River Protection Project

1999–2000: Mr. Pedigo's responsibilities included development of the startup portion of project estimate and schedule, development of commissioning strategy and startup program, development of test section of the

Preliminary Safety Analysis Report, and provision of input to design for startup, maintenance, and operations on this Department of Energy nuclear waste vitrification project in eastern Washington.

Site Manager, BP Amoco and Koch Refinery Projects

1997–1999: Mr. Pedigo had overall responsibilities for capital projects, maintenance support, and turnarounds at BP Amoco's Pasadena, TX plant. For the Koch Refinery, he had responsibility for 300 direct hire craft and 35 non-manual staff, with scopes of work including maintenance, turnarounds, and capital projects under $10 million.

Project Startup Engineer, Koch Refinery and Hoechst Celanese Projects

1994–1997: Mr. Pedigo's responsibilities included Koch/Bechtel Alliance development, Koch Corporate maintenance program reengineering, KRC-CC maintenance program development (east and west plants), plant reliability program development, maintenance technology development, and maintenance resource redeployment. On the Hoechst project, his duties included client maintenance organization restructuring, plant reliability program improvement, process and equipment improvements, and plant preventive / predictive maintenance program development.

Project Engineer, Dresden and Quad Cities Nuclear Power Plant Maintenance & Modification

1991–1994: Mr. Pedigo's responsibilities included oversight of the resident engineering group, client interfaces, building a resident team, and facilitating execution of work, as well as project planning, maintenance group restructuring, and site procurement process evaluations.

Project Startup Engineer, Susquehanna Steam Electric Station

1987–1991: Mr. Pedigo served as site manager for all Bechtel activities at Susquehanna, including interfaces for operating plant services and coordinating support with multiple Bechtel offices. Additionally, he performed in a seconded role to PP&L as a mechanical maintenance planner. His responsibilities included generating work plans for work authorization documents using PP&L mainframe, knowledge of ASME Code (including NIS-2 forms, code repair forms and code retest and inspection requirements), familiarity with plant technical specifications, preparation of weld travelers, jobhour estimating, ALARA radiation blocking, personnel safety blocking, materials and parts, operating plant impacts, special tooling and techniques.

Senior Startup Engineer, Susquehanna Steam Electric Station

1982–1987: Mr. Pedigo was ACR/PGCC group supervisor, responsible for special projects, design change package implementation, Regulatory Guide 1.97 changes, and human factors engineering. Additionally, as supervisor of the procedure-writing group, he was responsible for technical specification compliance review documents and local panel alarm response procedures. Later on in the project, he was responsible for project coordination and startup of an additional standby emergency diesel generator, as well as schedule development, project scoping, design compliance, and operability review.

Startup Engineer, Susquehanna Steam Electric Station

1980–1982: Mr. Pedigo was responsible for the startup worklist (open items tracking), as well as the startup of the standby diesel generator and 24 and 125 V DC systems. He assisted in the Unit 1 integrated leakage rate test and preliminary work for vessel nuclear instrumentation.

Field Engineer, Comanche Peak Nuclear Generating Station

1979–1980: Mr. Pedigo was responsible for generating turnover packages, system scoping, and system walkdowns; generating and verifying construction punchlist completion; conducting weekly construction turnover progress meetings; and presenting system turnover to client.

Field Engineer, Susquehanna Steam Electric Station

1976–1978: Mr. Pedigo was responsible for the electrical and instrumentation portion of the primary containment structural integrity test; civil support in the reactor building and control structure; and raceway and equipment installation for the control structure, containment, and reactor buildings, including the advanced control room/power generation control complex (ACR/PGCC).

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Jerry B. Pettis

Project Administrator

Jerry Pettis is a seasoned, results-oriented professional with 26 years of experience within contractor organizations supporting Department of Energy nuclear facilities and the National Nuclear Security Administration. He has proven leadership capabilities in interpreting and executing requirements, reducing costs, maximizing team productivity, and developing innovative tools. He has successfully managed teams responsible for a variety of administrative functions to include prime contract requirements, records administration, document control, publications, training, and related budgetary processes. He has returned to Bechtel employ after several years of retirement.

Education

- B.S., Business Administration, Lander University

Military Service

- U.S. Army, 1968-1971
- South Carolina Army National Guard, 1972-1979

Document Services Manager, Depleted Uranium Hexafluoride (DUF6) Project, B&W Conversion Services

2011–2013: Mr. Pettis managed the document and records functions for the DUF6 conversion plants in Paducah, Kentucky and Piketon, Ohio, as well as the executive office functions located in Lexington, Kentucky. His responsibilities included managing all project records, document control, and procedures functions. He ensured that Department of Energy (DOE) documents and records were created, maintained, captured, and protected per published requirements.

Manager, TA-21 Project Services and Infrastructure, Los Alamos National Laboratory, Bechtel National

2009–2011: Mr. Pettis managed administrative and facility services for a $212 million American Recovery and Reinvestment Act of 2009 (ARRA) environmental restoration and decontamination and decommissioning project. His responsibilities included ensuring that the stringent reporting requirements required by ARRA were met; managing all project records, document control, and procedures functions; project training development, implementation and tracking; development and implementation of a robust internal and external communications and outreach program; facility utilization and staff assignment activities; project issues tracking and resolution, and project security.

Requirements Manager, Prime Contract Management Office, Lawrence Livermore National Laboratory, Bechtel National

2007–2009: Mr. Pettis managed complex activities for the laboratory's prime contract, which include ensuring that organizational objectives involving the performance evaluation process, program direction, cost allowability, and other aspects of prime contract management are met. He also was the institutional interface between the company and external agencies for the evaluation and interpretation of regulations and directives for applicability to the prime contract, coordinating with National Nuclear Security Agency's Livermore Site Office in making changes to the list of DOE orders, policies, notices, and standards included in Appendix G of the prime contract. Additionally, he ensured that responsible managers assess the cost and schedule impacts of any proposed addition of requirements to the contract and coordinating assessment outcomes with the Livermore Site Office.

Document Control Group Leader, Information Resources Management Division, Los Alamos National Laboratory, Bechtel National

2006–2007: Mr. Pettis managed complex activities for institutional level document control activities by establishing an institutional, customer focused, centralized document control program for the laboratory; integrating numerous disparate document control processes and systems into an integrated program. He established minimum training and performance expectations for laboratory document control staff to ensure consistent document control capability and that the appropriate laboratory documents were retained and up-to-date versions were available to all users in a timely fashion. He also supported the Information Resources Management Division Leader in developing and monitoring the division budget.

Manager, Information Resources Department, Nevada Test Site, Bechtel National

2004–2006: Mr. Pettis managed complex institutional level activities for a variety of administrative and technical support services for Bechtel's work on the Nevada Test Site. His responsibilities included functional management of all Bechtel administrative employees and technical writers; operation of the Nuclear Testing Archive; program management for all institutional records and document control; institutional scientific and technical information programs; office services functions such as printing and reproduction services, mail services, printing services through the Government Printing Office (GPO), and convenience copier program management.

Manager, Program Administration and Support Department, Soil & Groundwater Closure Projects, Savannah River Site, Bechtel National

2002–2004: Mr. Pettis managed extensive department level activities in support of environmental restoration activities at the 310 square mile Savannah River Site. His responsibilities included development and implementation operations and regulatory training for environmental restoration employees; development, revision, publication and maintenance of procedures; production of a large number of regulatory documents; development of graphics and presentations to support internal and external communication of the environmental restoration mission, challenges, and successes; document control and records management to include management of the sites Administrative Record and public reading room materials; maintenance of the reproduction center and capability; coordination and management of division clerical and secretarial support personnel; and accountability and inventory of all division property and facilities.

Division Training, Procedures, and Reporting Manager, Soil & Groundwater Closure Projects, Savannah River Site, Bechtel National

1995–2002: Mr. Pettis managed division level activities that included the analysis, design, implementation, evaluation, and maintenance of initial and continuing training for job-specific operator, staff, supervisor and manager training programs. These programs included general, task specific, and regulatory training for 400+ employees and subcontractors; the development, scheduling, publication, and technical support for presentations and reporting to audiences including Department of Energy, Environmental Protection Agency, South Carolina Department of Health & Environmental Control, and the site's Citizen's Advisory Board. He also oversaw the management and maintenance of the division's emergency action and emergency response programs.

Administrative Manager, 400-D Power House, Savannah River Site

1993–1995: Mr. Pettis managed all phases of administrative support for the site's 70 MW coal fired power and steam plant, including the interpretation and administration of Power Operations Department plans and policies; document control and records management; procedures development, and publication and maintenance. He was also responsible for the analysis, design, implementation, evaluation, and maintenance of initial and continuing training for job-specific operator, staff, supervisor and manager training programs for 300+ employees, as well as facility issues investigation as Critique Director. He also functioned as interface with the DOE facility representative for resolving identified facility and programmatic issues and served as area emergency coordinator.

1987–1993: Prior to his position as Administrative Manager, Mr. Pettis held several positions of increasing complexity and responsibility at Savannah River, including the development of a cross functional team to identify, categorize, inspect and maintain the site's earthen dams. He was awarded the prestigious George Westinghouse Signature Award of Excellence for successfully supervising the $10 million, 19 month, PAR Pond earthen dam emergency stabilization project.

Various positions in manufacturing, civil service, finance, management consulting, and banking

1967–1987

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Michael K. Robinson

Construction Manager

Technical Qualifications

- Registered Professional Engineer in Pennsylvania

Education

- B.S., Civil Engineering, University of California
- Certificate, Bechtel Executive Plan XVIII

Mike Robinson has more than 44 years of project and corporate management, construction, and engineering experience on various fossil and nuclear power generation projects worldwide, as well as U.S. Government environmental remediation and infrastructure rebuilding efforts. He has provided leadership on some of the largest mega-projects in the power and government sectors. His career has spanned all aspects of project and construction management of solid fuel, natural gas, and nuclear facilities, as well as commercial and engineering roles of increasing responsibility. He is a proven and highly respected leader who is equally adept in managerial, technical, and commercial roles. He has recently returned to Bechtel after several years in retirement.

Project Manager/Site Manager, Crystal River Unit 3 Containment Repair Project

2012–2013: Mr. Robinson led the multi-disciplinary team to develop engineering/construction solutions and cost and schedule estimates for the Crystal River 3 containment delamination repairs, one of the most technically daunting efforts in the industry, from its initial development through the phase I engineering effort until the project was cancelled by the customer and the plant permanently shut.

Project Manager, M-3 Mixing Project

2010–2011: Mr. Robinson was responsible for managing the closure of the mixing issues for the waste receiving, transfer, and mixing tanks and issues associated with them for this Department of Energy (DOE) site. Project requirements were to design the systems and provide testing that demonstrates the design works. DOE HQ and local office personnel required that any issues surrounding the Mixing Project were identified to ensure that the plant will operate for its 40-year life.

Area Project Manager/Project Operations Manager, Waste Treatment Plant (WTP)

2007–2010: Mr. Robinson was the Area Project Manager for the Plant-wide account that includes Engineering, Construction, Acquisition Services, Materials Management, and Startup for this $15B+ project. He had the responsibility to ensure that each department is meeting their budgets and schedules, have proper staff to meet the project needs, and have proper plans to go forward. Each department had to identify any cost or schedule changes and have adequate documentation and justification for those changes. Mr. Robinson interfaced daily with his client counterpart to ensure they were aware of current issues and events. In addition, he was the Project Operations Manager, and these additional responsibilities included safeguards and security, risk management, project support, and special project management projects. Mike was also the Six Sigma deployment manager.

Site Manager, Oak Creek Expansion Project (Elm Road)

2004–2007: In this capacity, Mr. Robinson was involved in developing the construction philosophy for this 1,300 MW two-unit EPC new build coal-fired power plant, including detailed up-front planning for execution of the project, staffing, schedule, erection scheme, and interface with engineering, vendors, subcontractors, and unions. The execution of the work included day-to-day direction of all construction personnel, interface with the owner and other agencies to resolve open issues, answer questions, and coordinate plans because of the existing power plant on the same site.

Operations Manager, Iraq Project

2003–2004: Mr. Robinson was responsible for all work in the northern two thirds of Iraq, which included included power projects, water and waste projects, bridge repair, telephone infrastructure repair, and school and hospital repair. Daily interface with both USAID and the U.S. military as required to coordinate work and ensure the most pressing projects were worked and funds were available. Additional coordination with the

Iraqi Ministry personnel was also required to ensure they were kept informed about the status of projects, and they agreed with the proposed projects being planned.

Fossil Operations Manager–North America, Bechtel Power

2000–2003: Mr. Robinson was responsible for project execution of over half of the on-going North American power projects, including establishing the project management philosophy and procedures, continuously monitoring the project status including cost, schedule, safety, staffing, trends, change orders, and client relations. He provided real time feedback and guidance to the project managers about their performance, in addition to providing training and personal development. Mike assisted Business Development with project development and reviewed the commercial issues to ensure that they met business requirements.

Fossil Operations Manager–Europe, Africa, Middle East, Bechtel Power

1999–2000: In this capacity, Mr. Robinson was responsible for project execution of all power projects in the EAM region, including establishing project management philosophy and procedures. He continuously monitored project progress including cost, schedule, safety, client relations, staffing, and trends. Mike assisted with Business Development efforts and concurred with final estimates. He interfaced with other Regional Ops Managers to optimize resource usage and project execution.

Project Director, Dabhol Power Station Project

1994–1999: Bechtel and General Electric (GE) formed a consortium to perform the engineering, procurement, construction, and startup of this 2,240 MW combined cycle power project in India (at the time the largest foreign investment in India), with GE providing the major equipment and Bechtel providing the balance of the work. Mike had overall responsibility for the consortium, as well as being the prime interface with the Owners' Project Director. Primary activities included developing project execution philosophy, Bechtel/GE interface, and day-to-day direction to the project managers and site manager.

Manager of Projects, Fossil, Bechtel Power

1992–1994: Mr. Robinson was responsible for the overall management of numerous fossil projects in various stages of development and execution. He supervised project managers and assisted them in setting goals and establishing philosophy of approach to individual projects. Mike provided guidance to project managers in their day-to-day activities, including client relationship and providing formal and informal training and development of the project managers. He also coordinated interaction between projects in areas of business line goals, company direction, relevant project experience, resource sharing and allocation, and other pertinent information.

Project Manager, Coryton Cogeneration Power Project

1991–1992: Mr. Robinson was responsible for developing a lump sum package for the engineering, procurement, construction, and startup of a 500 MW combined cycle cogeneration plant for the Mobil Refinery in Coryton, England. Work included preliminary engineering to identify the technical scope of the project, selection and negotiation for lump sum contracts for the gas turbines, steam turbine, HRSG, and air-cooled condenser. Also included were development of a construction and labor relations' plan, project schedule, startup program, and full lump sum estimate. Assistance was provided to the client for permitting and non-recourse financing. Contractual negotiations for all terms and conditions were also included.

Project Manager, Panther Creek Project

1989–1991: Mr. Robinson assisted in project development including contract negotiations, cost, schedule, and testing requirements. He was responsible for project execution and management of engineering, construction, startup, procurement, and project controls. Mike coordinated and communicated with client/owner including change order negotiation and approval. He established terms and philosophy of job execution and kept appropriate management updated on project status. Mike also tracked job to final and successful completion.

Project Manager, Scrubgrass Project

1989–1989: Mr. Robinson assisted in project development including contract negotiations, cost, schedule, and testing requirements. He was responsible for project execution and management of engineering, construction, startup, procurement, and project controls. Mike coordinated and communicated with client/owner including charge order negotiation and approval. He established terms and philosophy of job execution and kept appropriate management updated on project status.

Project Superintendent, Gilberton Cogeneration Project

1986–1989: Mr. Robinson was the Project Superintendent for the construction of a $100 million cogeneration facility. Contract included power plant and coal handling facility — 40 percent was subcontracted. Mike supervised 30 nonmanual and 200 craftsmen.

Lead Contracts Coordinator, Scott Paper Cogeneration Project

1984–1986: Mr. Robinson's duties included front end planning and contract package scoping. He also supervised the contract coordination on a fluidized bed boiler.

Civil, Mechanical, and Electrical Craft Superintendent, Grand Gulf Nuclear Power Plant

1983–1984: Mr. Robinson's duties included front end planning and contract package scoping. He also supervised the contract coordination on a fluidized bed boiler.

Lead Civil Contracts Coordinator, Martin Marietta Coal Conversion

1981–1983: Mr. Robinson coordinated civil contracts, including contracts and specification interpretation, inspected and accepted the work, and negotiated extras and claims.

Various Civil Engineering and Quality Positions, Grand Gulf Nuclear Power Plant

1975–1981: Assignments at Grand Gulf included Assistant Lead Civil Engineer, Lead Area Engineer for the yard and control building, and Resident Civil Engineer. Mike acted on behalf of the Project Engineer at the jobsite. Duties as Lead Civil Quality Control Engineer and Assistant Project Field Quality Control Engineer included assisting in implementation of the project quality control policy and coordinating the work of all QC disciples. Later assignments included responsibility for senior contractors' changes, invoice approval, and monthly progress meetings. As HVAC Coordinator, Mike coordinated the completion of all heating and ventilating systems with the contractor and Bechtel. He supervised up to 100 people.

Construction Coordinator, SNUPPS

1972–1975: Mike reviewed drawings, specifications, project schedules, and procurement packages for final design phase and construction for the SNUPPS nuclear plant.

Civil Design Engineer, FFTF

1971–1972: Mike performed structural design and analysis for structural steel and concrete structures.

Civil Field Engineer, Calvert Cliffs Nuclear Power Plant

1969–1971: Mike was responsible for planning and scheduling, inspecting field placement, review drawings, quantity accounting, and scheduling civil activities.

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Stephen D. Routh

Project Manager (Engineering and Licensing)

Steve Routh is a Senior Project Manager with over 35 years of nuclear experience and is currently the manager of Bechtel's Nuclear Engineering Services group. He has supported new nuclear generation efforts at various sites since 2001 and is recognized as an industry expert in nuclear engineering, safety, and licensing. Additionally, Steve is an active member of NEI and EPRI new generation task forces and working groups.

Technical Qualifications

- Registered Professional Engineer, Virginia
- Six Sigma Champion

Education

- M.B.A., Finance, Mount St. Mary's College
- MEng., Nuclear Engineering, Pennsylvania State University
- B.S., Nuclear Engineering, Pennsylvania State University

Memberships

- Member, American Nuclear Society
- Member, ANS SMR Task Force
- Member, EPRI Advanced Nuclear Technology Group
- Member, NEI COL Task Force
- Member, NEI Seismic Issues Task Force

Manager, Nuclear Engineering Services

2009–Present: Mr. Routh is responsible for Bechtel's engineering and licensing services projects including support of operating plants, new nuclear generation, Fukushima response projects, and proposal preparation. He was previously the Project Manager for New Nuclear Generation Projects. Projects supported during this period include:

- North Anna Unit 3 Owner's Engineer and COL (APWR/ESBWR)
- Turkey Point COL (AP1000)
- Calvert Cliffs COL (U.S. EPR)
- South Texas COL (ABWR)
- V.C. Summer Units 2 & 3 Engineering and Licensing Support (AP1000)
- FENOC New Nuclear Site Selection Study (mPower)
- AREVA DCD (U.S. EPR)
- Clinch River Construction Permit Application (mPower)
- Dominion, South Texas, Watts Bar, and Constellation Fukushima response projects
- SONGS Spent Fuel Pool Island Cooling
- Vermont Yankee Decommissioning Cost Estimate
- Monticello and Prairie Island design modifications
- Fennovoima (Finland) New Plant Constructability and Schedule Assessment (EPR and ABWR)
- Wylfa Newydd (UK) New Plant Schedule and Cost Study (ABWR)

Additionally, Mr. Routh managed Bechtel's overall Fukushima response efforts including industry representation and development of approaches and capabilities, as well as responsibility for nuclear power proposal preparation.

Project Manager, Early Site Permit/Combined Operating License Technology Group

2001–2008: As Manager of the ESP/COL Technology Group, Mr. Routh provided engineering and licensing oversight of Bechtel's new generation projects (Calvert Cliffs, North Anna, South Texas, Vogtle, V.C. Summer, Turkey Point, and Victoria County). He was also the project manager for the North Anna ESP project, North Anna COL and Site Engineering project, and the Turkey Point COL project.

Manager of Regulatory Affairs, Nuclear Power

1999–2001: Mr. Routh was responsible for the licensing and regulatory oversight of the Bechtel nuclear power projects (new nuclear generation, steam generator replacements [SGRs], operating plant services) and SERCH, Bechtel's generic licensing service.

Licensing and Safety Analysis Supervisor, U. S. Enrichment Corporation

1995–1999: Mr. Routh managed the preparation of the upgraded Safety Analysis Reports for the Paducah and Portsmouth gaseous diffusion plants and managed activities for the project team including subcontractor support. He also provided detailed cost and schedule control, technical review of revised analyses; responded to NRC questions, and interfaced with NRC and DOE personnel. Mr. Routh also established regulatory processes for NRC oversight.

Project Engineer for the North Anna 1, North Anna 2, and Ginna Steam Generator Replacement Projects

1991–1995: Mr. Routh's duties included managing mechanical, materials, civil, nuclear, and licensing engineering activities in support of the projects including evaluation of alternative approaches, conceptual and detailed engineering, constructability reviews, subcontractor control, and client interface.

Assistant Chief Nuclear Engineer

1987–1991: Mr. Routh provided nuclear licensing support to operating plant services projects in the areas of design change packages operability and safety evaluations, justified continued operations, Part 21s, and NRC interaction, and assisted in the administration of the nuclear department and salary planning.

Nuclear/Licensing Supervisor

1983–1987: Mr. Routh prepared the safety analysis report, environmental report, and license documents for the Surry plant dry cask Independent spent fuel storage installation (the first licensed in the United States), and supported several other operating plant services and SGR projects.

Licensing Engineer/Deputy Supervisor, Grand Gulf Project

1980–1982: Mr. Routh supported the licensing effort for the operating license, preparation of the FSAR, environmental report, and the technical specifications. He supported NRC question responses, public hearings, as well as NRC safety evaluation report review and SER open item responses.

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Edward (Ed) A. Sherow

Engineering Manager

Technical Qualifications

- Six Sigma Champion

Education

- B.S., Electrical Engineering, Rensselaer Polytechnic Institute

Ed Sherow has over 43 years of engineering experience in the nuclear and fossil power industry, focusing on all phases of power plant activities, with specific background in electrical. He has worked on numerous projects throughout his career including Calvert Cliffs, Grand Gulf, Turkey Point, and Brown's Ferry Units 1 and 3 nuclear plants, as well as the design development of the U.S. EPR and the associated submittal of a COL for Calvert Cliffs Unit 3.

Engineering Manager, Nuclear Projects

2012–Present: Mr. Sherow is currently responsible for functional engineering management oversight, development, and execution of multiple nuclear projects. Work involves assistance and review of project estimates/schedules, project setup and staffing review, quality, schedule, and budget performance monitoring, project-specific process and procedural approvals, and coordination of lessons learned/experiences between multiple nuclear projects.

Nuclear Project Engineering Manager/Project Engineer, U.S. EPR Design Development & Certification and Calvert Cliffs Unit 3 COLA

2005–2011: Mr. Sherow managed the detailed design for the U.S. EPR, a 1,600 MW Generation III+ nuclear plant, with the first plant in the U.S. targeted for Calvert Cliffs. He also managed the work associated with supporting AREVA in achieving design certification. He also managed the development and support to UniStar (JV of EdF and Constellation) for submittal of the Combined Operating License Application for Calvert Cliffs Unit 3 based upon the EPR technology.

Fossil Project Engineer, Fossil Technology Group

2005–2005: Mr. Sherow managed the development and design of fossil generation plants. Work involved supervision or coordination of multidisciplinary engineers, technical specialists, estimators, and Business Development to provide proposals and the development aspects of fossil power projects. Close client coordination was required.

Task Integration Manager/Metrics Manager, Browns Ferry Unit 1 Restart Project

2003–2005: Mr. Sherow was responsible for the overall execution and quality of work relating to metrics reporting, integrated task equipment list programming/data integrity, and overall training program.

Assistant Project Manager/Project Engineer, Mountainview CCGT Project

2001–2003: As assistant project manager on this combined cycle gas project, Mr. Sherow's responsibilities included supervising execution planning, contract administration of the EPC Agreement, contract administration of major equipment (including the GE Power Island subcontract), contract compliance as well as the championing of other specific areas of critical concern to the success of the project. He was also responsible for interface with the Owner's project manager and for monitoring cost and schedule progress. As project engineer, he was also responsible for the overall engineering of the project, including technical correctness, compliance with codes, optimizing design/installation costs, and interface with suppliers and owner.

Fossil Project Engineer, Fossil Technology Group

1999–2001: Mr. Sherow managed the development and design of fossil generation plants. Work involved supervision or coordination of multidisciplinary engineers, technical specialists, estimators, and Business Development to provide proposals and the development aspects of fossil power projects. Close client coordination was required. During this period, Mr. Sherow also completed a 7-month assignment in 2000 at the Red Hills Generation Facility jobsite, a 440 MW CFB in Mississippi, as the Project Field Engineer responsible for all Field Engineering activities at the site.

Multi Project Acquisition Group (MPAG) Manager, MPAG

1996–1999: Mr. Sherow managed the electrical MPAG. The group is an integrated cross-functional team of engineering and procurement personnel implementing the Bechtel supply chain strategy. Efforts focused on optimizing and managing cost and schedule in the delivery of equipment. Key items included interfacing power projects and suppliers, implementing standard products, making process improvements and negotiating supplier agreements. During this period, he managed the combined Electrical/Control Systems MPAG until it was separated into two groups.

Project Manager, Substation/Transmission Engineering

1993–1996: In this assignment, Mr. Sherow was responsible for commercial and technical operations of the Gaithersburg Substation/Transmission Engineering (STE) Group. The STE Group varied in size from 20 to 30 multidiscipline engineers doing switchyard and transmission line work directly for utilities while also supporting Bechtel New Generation projects.

Project Engineer, Browns Ferry Nuclear Unit 3

1991–1993: Mr. Sherow's responsibilities included overseeing the electrical discipline consisting of 135 to 200 engineers preparing design modifications for upgrading Unit 3 to allow restart. Effort included monitoring schedules for all activities, monitoring costs, interfacing with client, supervising personnel, and preparing, evaluating, and approving proposals. He was also responsible for special projects and later the DCN Production Group. Special projects duties included overall responsibility for Procurement Engineering Group and engineering scheduling for restart of Browns Ferry Unit 3. For the DCN Production Group, he was responsible for multidiscipline group of 250 engineers preparing design modifications for upgrade of Unit 3 to allow restart. Effort included monitoring schedules for all activities, monitoring costs, interfacing with the client, and preparing, evaluating, and approving DCN modification packages.

Project Engineer/Group Supervisor, FPL Projects

1986–1991: Mr Sherow was responsible for managing FPL's drawing update efforts for Turkey Point Units 3 and 4. Work included approving drawings as client representative, monitoring and controlling work output, reviewing indicators, assigning work priorities for up to 60 people, and maintaining budgets/schedules. He was also responsible for managing the design fossil operating plant services and the electrical and I&C work.

Group Supervisor, Electrical/Control Systems Group, Operating Services

1984–1986: Mr. Sherow's tasks included supervising electrical and instrumentation and controls (I&C) work at various operating plants. He approved drawings, calculations and installation packages, preparing/evaluating proposals, coordinating with vendors/client, monitoring schedules/budgets, and electrical/control systems work of up to 20 engineers. Typical projects included addition of a precipitator for BG&E H.A. Wagner Unit 3, addition of dry cask spent fuel storage, radiation monitoring upgrade, and a facilities renovation for Virginia Power's North Anna and Surry Nuclear Stations, addition of natural gas warm-up for BG&E H.A. Wagner Unit 2, upgrading coal handling and sampling for Virginia Power's Mt. Storm Plant, a conversion to natural gas for FPL's Martin plants, and using coal water slurry as an alternate fuel for the Pfizer plant at Groton.

Group Supervisor, Electrical/Control Systems Group, Grand Gulf Units 1 and 2

1976–1984: In this assignment, Mr. Sherow's responsibilities included approving drawings, calculations, and installation packages, preparing/evaluating proposals, coordinating with vendors/client, monitoring schedules/budgets, and supervising electrical and I&C work.

Electrical Field Engineer, Calvert Cliffs Units 1 & 2 and Grand Gulf Unit 1

1972–1980: Mr. Sherow was responsible for overall installation and turnover to Startup of various plant systems. Duties included verifying system scope, walking down the system to ensure construction-reflected design, interfacing with Design Engineering, preparing punch lists for outstanding items, and releasing systems to Startup. He was also responsible for cable installation. Duties included verifying routing (both by drawing review and walkdowns), correcting routings, cable inspections, initiating termination installation, cable termination inspection, documentation reviews, and resolving problems.

BECHTEL

INFRASTRUCTURE
MINING & METALS
NUCLEAR, SECURITY & ENVIRONMENTAL
OIL, GAS & CHEMICALS

George D. Spindle

Construction Manager

Technical Qualifications

- Registered Civil Engineer, California and Pennsylvania (Retired)
- Member, National Society of Professional Engineers
- Member, California Society of Professional Engineers

Education

- B.S., Civil Engineering & Mathematics, University of Arizona
- Construction Executive Program, Texas A&M University

Over his 47 year Bechtel career, Mr. Spindle has served in a variety of construction management and leadership roles, both domestically and around the world. He offers broad and deep construction and managerial experience from nuclear and fossil power plants to oil and gas facilities with a variety of execution and contractual models. He has a proven ability to both manage and lead others in order to successfully execute projects on time and budget. Currently, Bechtel is privileged to have Mr. Spindle as a consultant resource, and he serves as a construction subject matter expert on a variety of Bechtel projects world-wide.

Consultant, Bechtel Group

2009–current: Since his retirement from Bechtel, Mr. Spindle has consulted on various Bechtel projects, providing insight on nuclear and fossil power, mining and metals, infrastructure, and oil and gas projects. His input has included analysis of execution strategies, risks, and implementation of lessons learned, as well as commercial and technical aspects of projects. He has also led two assessments of the status, challenges, and opportunities on the Watts Bar Unit 2 Completion Project.

Site Manager, Olympic Dam Project

2009: Mr. Spindle was the Site Manager of the Olympic Dam Project in Australia, a $12B uranium mine for BHP-Billiton awarded to Bechtel on an EPC basis. He led the development and execution planning for the project until it was cancelled due to the economic downturn.

Manager of Construction, Bechtel Oil, Gas & Chemicals (OG&C)

2005–2008: Mr. Spindle oversaw the construction execution and personnel deployment for all OG&C projects world-wide.

Manager of Construction, Bechtel Construction Operations Incorporated (BCOI)

2000–2005: Mr. Spindle was responsible for the world-wide execution of construction projects, deployment of construction personnel, and the effective implementation of processes and procedures.

Manager of Construction, Bechtel Construction Co. / Bechtel Builders Inc.

1994–2000: Mr. Spindle was responsible for the execution of all construction projects in the Asia Pacific region, deployment of construction personnel, and the effective implementation of processes and procedures.

Manager of Construction, Bechtel Construction Co.

1992–1993: Mr. Spindle was responsible for the execution of all construction projects in Western North America and the Asia Pacific region, deployment of construction personnel, and the effective implementation of processes and procedures.

Manager of Construction, San Francisco Regional Office

1990–1992: Mr. Spindle was responsible for the execution of all construction projects sponsored by the SF office, deployment of construction personnel, and the effective implementation of processes and procedures.

Construction Manager, Bechtel Construction, Inc.

1989–1990: Mr. Spindle was responsible for the construction execution of all direct hire power and petroleum projects.

Field Construction Manager, Basic American Foods American I Cogeneration Project

1988–1989: Mr. Spindle was responsible for the construction execution of this 120 MW California cogen project, which primarily uses natural gas to provide supply steam for vegetable drying and power to the electric grid.

Field Construction Manager, Gilroy Food Cogeneration Project

1986–1987: Mr. Spindle was responsible for the construction execution of this 115 MW California cogen project, which primarily uses natural gas to provide supply steam for food processing and power to the electric grid.

Field Construction Manager / Project Superintendent, Colstrip Units 3 & 4 Power Project

1979–1986: Mr. Spindle was responsible for the construction execution of two coal-fired units in Montana, producing 740 MW each. He began the project as Superintendent and in 1984 became the Field Construction Manager.

Lead Civil Superintendent, Limerick Nuclear Generating Station

1974–1979: Mr. Spindle was responsible for all civil work in the reactor buildings.

Assistant Superintendent, Jim Bridger Generating Station

1973–1974: Mr. Spindle was responsible for supervising all craft personnel involved in civil earthworks on these four coal-fired units in Wyoming, producing a total of 2,110 MW.

Senior Field Engineer/Construction Coordinator, Limerick Nuclear Generating Station

1971–1973: As Senior FE, Mr. Spindle was responsible for construction planning and scheduling, and as CC he was the construction liaison between the field work and engineering.

Field Engineer, Monticello Nuclear Power Plant

1968–1970: Mr. Spindle was responsible for the construction planning and scheduling.

Various Construction Roles

1961–1968: Mr. Spindle held various construction labor and planning/scheduling positions.

Appendix C

Bechtel Weekly Reports

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending August 28, 2015

- Members of the Bechtel team are scheduled to arrive onsite on Tuesday afternoon, September 8.
- On August 19, Bechtel provided a suggested agenda for the Wednesday, September 9, Consortium presentation at the site. A revised version of the agenda was received from WEC on August 25. Some additional suggested changes were provided by Bechtel on August 26.
- On August 24, a conference call was held with WEC to discuss Bechtel's document request list:
  - WEC described the status of identifying and obtaining approval to release copies of documents to Bechtel.
  - WEC described that a document room would be setup in the NOB where hard copies of certain documents would be placed.
  - Bechtel provided clarifications of several documents requested to WEC on August 26.
  - No new documents were received from SCANA or the Consortium during the week. The last documents received were posted in SCANA's electronic reading room on August 14.
- A CD of the Owner's P6 Integrated Project Schedule (IPS) was received on August 19. Since then, Bechtel has down loaded the schedule, identified the subprojects, and has begun manipulations of the schedule data. Based on initial reviews:
  - The IPS CD does not include all of the P6 schedule files (e.g., the WEC Engineering files are missing and the Milestones integration file was not provided). Without the Milestones file, schedule calculations cannot be performed.
  - It appears that there are as many as 60 mandatory constraints in the schedule data base that are precluding a true calculation of critical path negative float. The path that will have the largest impact appears to be through the shield building.
  - There appear to be minimal quantities loaded in the schedule. Quantities for the next 3 months are included, but it is not clear if they are complete. Quantities loaded in the schedule are needed to understand the impacts on installation sustained unit rates.
  - A preliminary manpower curve extracted from the schedule shows a peak of around 450,000 hours (2,200 craft) for a single month. This appears significantly low for a two unit construction effort.

  An initial discussion of the above schedule items was conducted with CB&I Project Controls personnel on August 26.
- Members of Bechtel's team continued their review of documents provided by SCANA and the Consortium.
- Began review of subproject schedules related to Construction. Also began review of subproject schedules containing Engineering, Licensing, Procurement/Subcontracts, and Quality Assurance activities.
- Prepared preliminary list of Construction discussion topics and questions in preparation for site mobilization and initial interviews.

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending August 28, 2015

- For Construction, Bechtel is interested in more information about the shield building. Bechtel's assessment will focus on panel fabrication, engineering tolerances, engineering changes, and installation sequencing. Installation of bulks is likely a near second critical path and will also be a focus area for the assessment.

- Information still needed from the Consortium for the Construction assessment includes:

  - Quantity curves
  - Unit rates
  - Manpower curves: non-manual and craft
  - Percent complete curves and method of calculation
  - Manpower loaded schedule
  - Equipment release dates
  - Module details, delivery schedules, and summary of all
  - Shield wall details and delivery and installation schedule

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 4, 2015

- Members of the Bechtel team are scheduled to arrive onsite on Tuesday afternoon, September 8.
- The Consortium presentation to the Bechtel team is scheduled for Wednesday, September 9. A final agenda was issued by WEC on September 7.
- Status of Bechtel's document request:
  - No new documents were received from the Consortium, SCANA, or Santee Cooper during the week. The last documents received were posted in SCANA's electronic reading room on August 14.
  - Members of Bechtel's team continued their review of documents that have been received to date.
  - In September 4 and 7 emails, WEC provided the following status of documents:

    219 Total Items Requested

    - 138 items previously issued electronically or via IPS disc.
    - 20 items have been marked as duplicates to other items on the list.
    - 3 items have been approved as software access – no documentation required.
    - 1 item needs clarification from Bechtel regarding Bingo sheets (10.19).
    - 57 remaining items required approval to release.

    Remaining 57 Items

    - 45 items have been approved and printed or made available for review. The reading room should be set up on Tuesday, September 8, for access by the Bechtel team.
    - 10 items have been approved and are part of the September 9 presentation and/or will be made available during follow-up deep dive sessions (difficult to produce copies of the information).
    - 1 item is approved but information is still being gathered regarding Construction Equipment plan (4.5).
    - 1 item will be discussed on September 9 - Engineering Manpower curves (10.13).
- A CD of the Owner's P6 Integrated Project Schedule (IPS) was received on August 19. Bechtel has down loaded the schedule, identified the subprojects, and is continuing to manipulate the schedule data. Bechtel's Project Controls, Construction, Engineering, Procurement, and Licensing personnel continued our review of the IPS information.

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 11, 2015

1.	Work Activities Performed Last Week (September 8-11)
1.1	**General** • The Bechtel Assessment team arrived on Tuesday, September 8, 2015 to begin the six-week, onsite assessment effort. • WEC and CB&I Consortium members gave a full-day presentation to the Bechtel Assessment team on Wednesday, September 9, 2015. Copies of the presentation were placed in the Assessment Reading Room. • The Bechtel Assessment team spent most of Thursday, September 10, and a large part of Friday, September 11, in training in order for the Bechtel team members to be granted a badge that will allow the Bechtel personnel unescorted access to the site. It is expected that the badges for unescorted access will be issued sometime during the week of September 14. • On Friday morning, September 11, SCE&G provided a site tour of Units 2 & 3 and a majority of the lay down areas. All of the Bechtel team members on site took this tour. • On Friday afternoon, members of the Bechtel Assessment team began to review the hard copy documents placed in the Reading Room.

2.	Work Activities Planned This Week (September 14-18)
2.1	**General** • Complete badging for Bechtel Assessment team members. • Scheduled breakout meetings with WEC and CB&I personnel on Tuesday (September 15), Wednesday (September 16), and Thursday (September 17) from 1-4 pm to discuss: - Quantity Curves - Craft Staffing Curves - % Complete Curve - Schedule – Critical Paths - Quality Issues - Modules Follow-up meetings will be schedule as needed.
2.2	**Project Management** • Carl Rau and Dick Miller have requested to have singular interviews with the following people on Wednesday, September 16: Steve Byrne, Jeff Archie (in Japan all week), Ron Jones, Alan Torres, Carlette Walker, and Carl Churchman. • Continue review of documents in Reading Room.
2.3	**Construction** • Perform direct observation of site activities: - Jobsite and area walk downs with senior construction personnel responsible for work areas.

	- Review of on-site fabrication activities of modules. - Review of indirects with responsible superintendent. - Review of construction equipment with responsible superintendent. - Overview of the safety program including the successes and challenges. - Overview of the Quality Control program and activities. - Overview of the Work Package process and Document Control. - Review of constructability review program with responsible manager. - Attend the following meetings: - POD – 9-10 am - Area Schedule Review – Thurs 1-3 pm - Module meeting with Customer – Tues 11-12 pm - OCC & Site laydown plan – Wed 12-1 pm - Safety meeting - Individual Area Schedule Review meetings. • Review documents in reading room. • Conduct internal discussions on comparisons of VCS against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc. • Review welding activities, quantities, and manpower required.
2.4	**Engineering and Licensing** • Continue review of documents in Reading Room. • Participate in breakout meetings described in Item 2.1. Schedule follow-up meetings as needed. • Attend CB&I/WEC Engineering Issues Meeting (0700). • Meetings are being scheduled with WEC, CB&I, and SCE&G lead engineering personnel. • Followup meeting scheduled with Brian McIntyre, WEC Licensing, at 8 am on Tuesday, September 15. • Meeting with April Rice, SCE&G Licensing, is scheduled for Tuesday, September 15, at 4:30 pm.
2.5	**Procurement** • Continue review of documents in Reading Room. • Meetings are being scheduled with CB&I Procurement at the corporate level, followed by the site team. • Meetings are being scheduled with Westinghouse's Procurement organization. • Attend the following meetings: - POD – 9-10 am - Area Schedule Review – Thru 1-3 pm - Module meeting with Customer – Tues 11- 12 pm - OCC & Site laydown plan – Wed 12-1 pm

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 11, 2015

	• Participate in schedule reviews with Bechtel Team. • Module Plan – Determine focus of review and where potentially the Bechtel team needs to go.
2.6	**Project Controls** • Continue review of documents in Reading Room. • Participate in breakout meetings described in Item 2.1. Schedule follow-up meetings as needed. • Develop sustained rate comparison evaluation tables against Bechtel historical data. • Begin critical path evaluations. • Begin productivity evaluations against Bechtel historical projects.

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 18, 2015

1. Project Management

Activities Performed Last Week (September 14-18)

- Four (of the nine) Bechtel personnel on the assessment team completed in-processing and received their Unit 1 badges. Four others were notified that their training was complete so they could be badged when they were available.
- Carl Rau and Dick Miller completed interviews with Ron Jones (VP-New Nuclear Operations and Owner's Project Director), Alan Torres (General Manager-Nuclear Plant Construction), and Carl Churchman (Consortium Project Director).
- September 17 – Bechtel (Steve Routh and Dick Miller) were invited and attended the Monthly Project Status Meeting.
- September 18 – Attended Consortium POD meeting.

Activities Planned This Week (September 21-25)

- Work with Jason Brown of WEC to identify what remaining document requests will be filled this week. Documents provided after this week may be too late to be considered in the Bechtel assessment.
- Complete Unit 1 badging for remaining Bechtel team members.
- Obtain CB&I badges for Bechtel team members.
- Conduct interviews with Carlette Walker (SCE&G VP - Nuclear Financial Administration), Jeffrey Archie (SVP-SCANA and CNO-SCE&G), and Stephen Byrne (EVP-SCANA and COO-SCE&G & President-Generation).
- Attend various team and Consortium meetings.
- Tour site construction areas.

2. Construction

Activities Performed Last Week (September 14-18)

- Reviewed Reading Room material including contract, quantity and manpower curves, September 9 Consortium presentation package, module drawings, etc.
- September 16 - Met with Bill Wood and JJ White and had a general discussion of project including nonmanual staffing, manual skill level and difficulties recruiting skilled crafts, and laid out plans for our walkdowns and interviews.
- September 14 – Toured laydown with SCE&G.
- September 15 – Attended SCE&G module meeting.
- September 15 – Attended Consortium Engineering overview presentation.
- September 15 – Participated in Consortium Project Controls presentation on quantity curves, manpower, earned percent complete, and critical path.
- September 16, 17, 18 – Attended POD meetings.
- September 16 – Met with Consortium Procurement and discussed procurement issues including laydown and warehouse issues, pipe holds and changes, organization.
- September 16 – Participated in Consortium Quality review of project with Dave Jantosik.
- September 17 – Toured the Unit 2 Nuclear Island and discussed issues with Bob Johnson and Andrew Fleetwood.
- September 17 – Toured the Module Assembly Building operation with Bart Schaffer and staff.
- September 18 – Toured the Turbine Building area with Scotty Holland and discussed issues impacting work.
- September 18 – Met with Indirects Superintendent Terry Bolton and reviewed indirect program.

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 18, 2015

Activities Planned This Week (September 21-25)

- Review new material as it is posted to the Reading Room.
- Attend Plan of the Day meetings.
- Attend September 21 Safety meeting.
- Discuss welding program with Mark Pietre.
- Attend September 21 meeting with Consortium on modules.
- Attend September 23 meeting with Consortium on QC program, including a detailed review of what the civil QC inspector does when inspecting a slab for concrete placement.
- Review Document Control Program, specifically how drawings are given to craftsmen and revisions tracked in the field.
- Review Work Package Program.
- Review Constructability Program.
- Conduct further review of Unit 2 Nuclear Island.
- Perform detailed review of Unit 2 containment schedule.
- Conduct internal discussions on comparisons of VCS against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc.

3. Engineering and Licensing

Activities Performed Last Week (September 14-18)

- Reviewed electronic and Reading Room material including engineering and licensing procedures, licensing schedules, contract, September 9 Consortium presentation package, module drawings, etc.
- September 14 – Attended Consortium Licensing overview presentation.
- September 15 – Attended Consortium Engineering overview presentation.
- September 15 – Attended Consortium Project Controls presentation.
- September 15 – Met with April Rice of SCE&G to discuss general licensing issues and processes.
- September 16 – Attended Consortium Procurement presentation.
- September 16 – Participated in Consortium Quality review of project with Dave Jantosik.
- September 16, 17 – Attended POD meetings.
- Participated in internal schedule discussions on comparisons of VCS against Bechtel historical information.

Activities Planned This Week (September 21-25)

- Review new material as it is posted to the Reading Room.
- Attend POD meetings.
- Meet with Brad Stokes and other SCE&G Engineering personnel.
- Attend September 21 meeting with Consortium on modules.
- Attend September 22 meeting with CB&I Engineering.
- Schedule visits to CB&I-Charlotte and WEC-Cranbury.
- Meet with Consortium Engineering personnel to discuss piping re-design effort and electrical support design.
- Obtain and evaluate metrics on E&DCRs and N&Ds.
- Review schedules for LARs and ITAAC closure.
- Provide Engineering and Licensing schedule input to Bechtel Project Controls.

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 18, 2015

4. Procurement

Activities Performed Last Week (September 14-18)

- Reviewed electronic and Reading Room material.
- September 15, 17 – Attended POD meetings.
- September 16 – Participated in Consortium Quality review of project with Dave Jantosik.
- September 16 – Met with Consortium site and corporate Procurement management personnel.
- September 17 – Participated in walkdown of Unit 2 containment and adjacent area.
- September 17 – Attended Area Schedule Review meeting.

Activities Planned This Week (September 21-25)

- Continue review of documents in Reading Room as they are submitted.
- Conduct additional meetings with CB&I Site Procurement to discuss data and process.
- Conduct walkdown of site warehouses and laydown yards.
- Schedule further discussion with WEC Procurement.
- Attend POD meetings.
- Attend September 21 meeting with Consortium on modules.
- Discuss need for site visits to module fabricator(s) and schedule.

5. Project Controls

Activities Performed Last Week (September 14-18)

- Reviewed electronic and Reading Room material.
- Compared current planned construction sustained rates to Bechtel historicals.
- Developed Bechtel version Level 2 schedule with additional detail within the key critical areas.
- Prepared a high level schedule milestone comparisons chart.
- Prepared initial productivity analysis for internal team reviews
- September 15 – Attended Consortium Engineering overview presentation.
- September 15 – Attended Consortium Project Controls presentation.
- September 16 – Attended Consortium Procurement presentation.

Activities Planned This Week (September 21-25)

- Continue review of documents in Reading Room as they are submitted.
- Schedule meetings with meetings with Abney Smith Jr. and Michele Stephens.
- Continue critical path evaluations.
- Start schedule probability assessment within P6 through use of PAR software.
- Review and finalize sustained rate comparison tables.
- Finalize Bechtel version L2 schedule for analysis reference.
- Create first revised schedule duration evaluation which considers current productivity impacts projected into the future.
- Create copy of the P6 Construction file with all hard constraints removed for future variation analysis.

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 25, 2015

1. Project Management

Activities Performed Last Week (September 21-25)

- All Bechtel personnel are now badged.
- Carl Rau and Dick Miller conducted interviews with Steve Byrne (COO & SVP), Jeff Archie (CNO & SVP), and Carlette Walker (VP Nuclear Financial Administration).
- Attended various team and Consortium meetings.

Activities Planned This Week (September 28-October 2)

- Work with Jason Brown of WEC to obtain the remaining documents requested.
- Interview Santee Cooper personnel.
- Meet with Bechtel assessment team members to review initial observations and recommendations.
- Attend various team and Consortium meetings.
- Tour site construction areas.
- Prepare sections of Bechtel assessment report.

2. Construction

Activities Performed Last Week (September 21-25)

- Reviewed Reading Room material.
- September 21 – Attended weekly superintendent safety meeting.
- September 21 – Met with Consortium personnel to discuss modules status and issues with deliveries and engineering.
- September 21 – Met with SCE&G Quality Manager to discuss client audits of CB&I quality.
- September 22 – Toured inside containment.
- September 22 – Attended the daily C20 Auxiliary Building and Containment 2 superintendent/field engineer schedule meeting.
- September 23 – Toured the shield building.
- September 23 – Met with CB&I Quality Control Manager to discuss organization and responsibilities.
- September 23 – Met with Consortium personnel to review the containment vessel schedule.
- September 24 – Met with CB&I Strategic Planning and Mechanical/Electrical Work Manager to discuss his group's efforts and review work package approach.
- September 24 – Met with Consortium Civil Work Package and Document Control personnel and reviewed the Annex Building civil work package and document control organization.
- September 24 – Met with Consortium project controls personnel to review the Unit 2 containment vessel schedule.
- September 25 – Attended the videoconference with WEC home office and site engineering personnel.

Activities Planned This Week (September 28-October 2)

- Review new material as it is posted to the Reading Room.
- Attend Plan of the Day meetings.
- Hold meeting with CB&I Electrical superintendent to better understand electrical packages.
- Hold meeting with Consortium Advanced Constructability Personnel to better understand Containment 2 civil work.

- Hold meeting with Consortium personnel to discuss electrical quantities and electrical support designs.
- Hold meeting with CB&I personnel to understand discipline superintendent roles.
- Attend September 28 follow-up meeting with WEC home office and site engineering personnel.
- Meet with Consortium Strategic Planning personnel to discuss work packages for piping and electrical on September 29.
- Meet with Consortium personnel to discuss startup plan, schedule, component test matrix, etc. on September 30.
- Perform detailed review of containment, auxiliary building, and turbine building schedules.
- Conduct internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc.
- Prepare sections of Bechtel assessment report.

3. Engineering and Licensing

Activities Performed Last Week (September 21-25)

- Reviewed new material as it is posted to the Reading Room.
- Attended POD meetings on September 22 and 24.
- September 21 – Attended meeting with Consortium on modules.
- September 22 – Attended meeting with CB&I Engineering.
- September 23 – Attended meeting on with Consortium on Strategic Planning.
- September 24 – Attended meeting on Work Package Development and Document Control.
- September 25 – Held videoconference with WEC Home Office (Cranberry, PA) and site engineering personnel to discuss to-go Engineering and engineering changes.
- Reviewed limited available metrics on E&DCRs and N&Ds.
- Provided Engineering and Licensing schedule input to Bechtel Project Controls.

Activities Planned This Week (September 28-October 2)

- Continue review of documents in Reading Room as they are submitted
- Attend September 29 and October 1 POD meetings (focus is engineering).
- Attend September 28 meeting with WEC Engineering to address to-go work (follow-up to September 25 videoconference).
- Attend September 30 meeting with Brad Stokes and other SCE&G Engineering personnel.
- Hold follow-up meeting with CB&I Engineering.
- Hold follow-up meeting with CB&I Licensing.
- Hold follow-up meeting with SCE&G Licensing.
- Meet with Consortium Engineering personnel to discuss piping re-design effort.
- Meet with Consortium personnel to discuss electrical quantities and electrical support design.
- Obtain and evaluate metrics on E&DCRs and N&Ds.
- Review schedules for LARs and ITAAC closure.
- Review representative ITAAC closure packages.
- Provide Engineering and Licensing schedule input to Bechtel Project Controls.
- Prepare sections of Bechtel assessment report.

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending September 25, 2015

4. Procurement

Activities Performed Last Week (September 21-25)

- Reviewed Reading Room material.
- Conducted meetings with CB&I Site Procurement to discuss data, process, and reports.
- Conducted walkdown of site warehouses and laydown yards.
- September 21 – Attended meeting with Consortium on modules.
- September 25 – Attended videoconference with WEC home office and site engineering.

Activities Planned This Week (September 28-October 2)

- Continue review of documents in Reading Room as they are submitted.
- Conduct meeting with CB&I Charlotte and Site Procurement personnel (Consortium to schedule).
- Attend September 28 follow-up meeting with WEC home office and site engineering personnel.
- Prepare sections of Bechtel assessment report.

5. Project Controls

Activities Performed Last Week (September 21-25)

- Reviewed Reading Room material.
- Completed the projects baseline version Level 2 schedule with additional detail within the key critical areas.
- Created first version of Bechtel revised schedule forecast.
- Created baseline bulk installation curves based upon current Consortium forecast.
- Downloaded and reviewed the engineering/procurement P6 milestones file.
- September 22 – Attended Consortium Containment schedule overview.
- September 24 – Attended Consortium Auxiliary Building and Turbine Building schedule overview.

Activities Planned This Week (September 28-October 2)

- Continue review of documents in Reading Room as they are submitted.
- Create revised Bechtel forecasted critical path for evaluation.
- Create Basis and Assumptions file for Bechtel forecasts.
- Create multiple forecasts based upon productivity analysis.
- Finalize Bechtel version of Level 2 schedule for analysis reference.
- Create revised bulk and manpower curves based upon Bechtel forecasts.
- Create Unit 3 Level 2 schedule.
- Create combined Unit 2 and 3 craft manpower curves.
- Prepare sections of Bechtel assessment report.

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending October 2, 2015

1. Project Management

Activities Performed Last Week (September 28-October 2)

- Continued with Interviews of Owner Personnel.
- Attended various schedule, work planning, and startup meetings with Consortium members.
- Continued data validation of transmitted project documents.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

Activities Planned This Week (October 5-9)

- Interview Santee Cooper personnel.
- Meet with Bechtel assessment team members to review initial observations and recommendations.
- Attend various team and Consortium meetings.
- Tour site construction areas.
- Prepare additional observations and recommendations.
- Continue to prepare sections of Bechtel assessment report.

2. Construction

Activities Performed Last Week (September 28-October 2)

- Reviewed Reading Room material.
- September 29 – Met with CB&I Strategic Planning Group to discuss work packaging.
- September 29 – Met with CB&I Electrical Field Superintendent to review extremely dense and complex electrical raceway and hangers in containment.
- September 29 – Met CB&I Advanced Constructability program to understand group responsibilities.
- September 30 – Observed Work Package distribution from the Document Control Center for Unit 2 Nuclear Island at start of shift.
- September 30 and October 1 – Met CB&I Startup personnel to review startup program and area and system turnovers from construction.
- October 1 – Met with CB&I Modules Procurement Manager to review program for module procurement.
- October 1 – Met with CB&I Shield Wall Manager to review erection of shield wall and roof.
- October 1 – Toured Unit 2 containment and auxiliary buildings and Unit 3 condenser assembly area.
- Conducted internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

Activities Planned This Week (October 5-9)

- Review new material as it is posted to the Reading Room.
- Attend Plan of the Day meetings.
- Attend Safety Meeting.
- Meet with CB&I Labor Relations to discuss recruitment and training of crafts.
- Meet with CB&I Welding Engineering to discuss welding program.
- Meet with CB&I Field Engineering to discuss work packaging.
- Conduct internal discussions on comparisons of VC Summer against Bechtel historical information on

unit rates, schedule durations, quantities, manpower, etc.
- Prepare additional observations and recommendations.
- Continue to prepare sections of Bechtel assessment report.

3. Engineering and Licensing

Activities Performed Last Week (September 28-October 2)

- Reviewed new material as it is posted to the Reading Room.
- September 28 – Conducted follow-up conference call with WEC Cranberry Engineering.
- September 29 – Attended meeting with CB&I Strategic Planning Group to discuss work packaging.
- September 29 – Attended meeting with CB&I Electrical Field Superintendent.
- September 29 – Attended meeting CB&I Advanced Constructability program.
- September 30 and October 1 – Attended meeting with CB&I Startup personnel to review startup program.
- September 30 – Met with Brad Stokes, SCE&G General Manager, Engineering Services.
- October 1 - Met with Consortium Project Controls to review WEC Engineering schedule.
- Provided Engineering and Licensing schedule input to Bechtel Project Controls.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

Activities Planned This Week (October 5-9)

- Continue review of documents in Reading Room as they are submitted.
- Perform follow-up interviews with Consortium and SCE&G personnel as needed.
- Evaluate metrics on E&DCRs and N&Ds.
- Review schedules for LARs and ITAAC closure.
- Review representative ITAAC closure packages.
- Provide Engineering and Licensing schedule input to Bechtel Project Controls.
- Prepare additional observations and recommendations.
- Continue to prepare sections of Bechtel assessment report.

4. Procurement

Activities Performed Last Week (September 28-October 2)

- Reviewed Reading Room material.
- September 29 – Conducted follow-up meetings with CB&I Site Procurement to discuss data and reports on field procurement activity.
- September 2 – Attended meeting with CB&I on work packages.
- September 30 – Attended meeting with CB&I 1X4 Procurement Manager.
- October 1 – Attended meeting with CB&I Modules Procurement Manager.
- Reviewed ROYG Procurement Report.
- October 1 – Met with WEC to discuss ROYG reports and requested different sorts of reports.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending October 2, 2015

Activities Planned This Week (October 5-9)

- Continue review of documents in Reading Room as they are submitted.
- Continue to analyze the ROYG report, interface with Project Controls on schedule.
- Hold follow-up meetings as required with CB&I & WEC Procurement.
- Prepare additional observations and recommendations.
- Continue to prepare sections of Bechtel assessment report.

5. Project Controls

Activities Performed Last Week (September 28-October 2)

- Reviewed Reading Room material.
- Created revised Bechtel forecasted Unit 2 critical path for evaluation.
- Created bases and assumptions file for Bechtel forecasts.
- Evaluated multiple forecasts based upon productivity analysis.
- Finalized Bechtel version of Level 2 schedule for analysis reference.
- Created revised bulk and manpower curves based upon Bechtel forecasts.
- Created Unit 3 Level 2 schedule.
- Created combined Unit 2 and 3 craft manpower curves.
- Conducted internal review of preliminary schedule package and incorporated comments.
- September 30 – Attended Consortium commodity installation and manpower curves review.
- October 1 – Attended WEC Engineering schedule review.
- Prepared initial observations and recommendations.
- Prepared sections of Bechtel assessment report.

Activities Planned This Week (October 5-9)

- Continue review of documents in Reading Room as they are submitted.
- Update bases and assumptions file for Bechtel forecasts for Unit 3.
- Finalize Bechtel version of Level 2 Unit 3 schedule.
- Analyze Unit 2 and 3 bulk curves for stagger between units.
- Finalize combined Unit 2 and 3 craft manpower curves.
- Continue to prepare sections of Bechtel assessment report.
- Finalize schedule package for internal management review.
- Prepare additional observations and recommendations.
- Continue to prepare sections of Bechtel assessment report.

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending October 9, 2015

1. Project Management

Activities Performed Last Week (October 5-9)

- October 9 – Met with CB&I Functional Operations Manager in Charlotte.
- Reviewed draft schedule, quantities, and sustained rates developed by Bechtel Project Controls.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

Activities Planned This Week (October 12-16)

- Interview Santee Cooper personnel.
- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.
- Meet with Bechtel assessment team members to review draft report sections, observations and recommendations.
- Complete preparation of Bechtel draft report.

2. Construction

Activities Performed Last Week (October 5-9)

- Reviewed Reading Room material.
- October 7 – Attended Plan of the Day meeting.
- October 7 – Met with CB&I Lead Welding Engineer to discuss welding program.
- October 7 – Met with CB&I Human Resources Director to discuss non-manual turnover.
- October 7 – Met with CB&I Project Director to review some initial observations of construction effort.
- October 9 – Met with CB&I Industrial Relations Director to discuss recruiting of crafts.
- Conducted internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

Activities Planned This Week (October 12-16)

- Review new material as it is posted to the Reading Room.
- Attend Plan of the Day meetings.
- Visit Craft Training trailer.
- Meet with CB&I Work Package planning personnel discuss work packaging, expected problems with electrical installations.
- Conduct internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc.
- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending October 9, 2015

3. Engineering and Licensing

Activities Performed Last Week (October 5-9)

- Reviewed new material as it is posted to the Reading Room.
- Provided Engineering and Licensing schedule input to Bechtel Project Controls.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

Activities Planned This Week (October 12-16)

- Continue review of documents in Reading Room as they are submitted.
- Perform follow-up interviews with Consortium and SCE&G personnel as needed.
- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.

4. Procurement

Activities Performed Last Week (October 5-9)

- Reviewed Reading Room material.
- October 7 – Conducted follow-up meetings with CB&I Site Procurement to discuss data and reports on field procurement activity.
- Reviewed ROYG Procurement Report.
- October 7, 8, 9 – Met with WEC Deputy Project Manager to discuss ROYG reports and requested different sorts of the ROYG report.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

Activities Planned This Week (October 12-16)

- Finalize observations and recommendations.
- Finalize input to Bechtel assessment report.

5. Project Controls

Activities Performed Last Week (October 5-9)

- Reviewed Reading Room material.
- Developed internal schedule package for review.
- Updated bases and assumptions to include Unit 3 addition to Level 2 schedule.
- Finalized Bechtel version of Level 2 schedule for analysis reference including Unit 3 forecasts.
- Conducted internal "Team Meeting" review and incorporated comments into overall schedule package.
- Decided on the separation duration between Unit 2 and 3 completion dates.
- Finalized Units 2 and 3 manpower curves.
- Created Unit 2 percent complete curves based on Bechtel forecast.
- October 9 – Met with CB&I Functional Operations Manager in Charlotte.

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending October 9, 2015

- Created additional Observations and Recommendations.
- Prepared sections of Bechtel assessment report.

Activities Planned This Week (October 12-16)

- Continue to review documents in Reading Room as they are submitted.
- Finalize Bechtel version of Level 2 Unit 3 schedule.
- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending October 16, 2015

1. Project Management

Activities Performed Last Week (October 12-16)

- October 16 – Met with SCE&G CEO.
- Reviewed draft schedule, quantities, and sustained rates developed by Bechtel Project Controls.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.
- Prepared presentation to SCE&G and Santee Cooper executive management.

Activities Planned This Week (October 19-23)

- October 22 – Presentation to SCE&G and Santee Cooper executive management.
- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.

2. Construction

Activities Performed Last Week (October 12-16)

- October 13, 15 – Attended Plan of the Day meeting.
- October 13 – Met with CB&I work planning group to discuss electrical and pipe hanger installation challenges.
- October 13 – Met with CB&I training manager to discuss program and capabilities of the onsite training facility and staff.
- October 14 – Performed field walkdown.
- Conducted internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.
- Prepared input for presentation to SCE&G and Santee Cooper executive management.

Activities Planned This Week (October 19-23)

- Conduct internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc.
- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.

3. Engineering and Licensing

Activities Performed Last Week (October 12-16)

- October 14 – Performed field walkdown.
- Reviewed new material posted to the Reading Room.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.
- Prepared input for presentation to SCE&G and Santee Cooper executive management.

Bechtel Weekly Report
V.C. Summer Units 2 &3 Completion Assessment
Week Ending October 16, 2015

Activities Planned This Week (October 19-23)

- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.

4. Procurement

Activities Performed Last Week (October 12-16)

- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.
- Prepared input for presentation to SCE&G and Santee Cooper executive management.

Activities Planned This Week (October 19-23)

- Finalize observations and recommendations.
- Finalize input to Bechtel assessment report.

5. Project Controls

Activities Performed Last Week (October 12-16)

- Reviewed Reading Room material.
- Developed internal schedule package for review.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.
- Prepared input for presentation to SCE&G and Santee Cooper executive management.

Activities Planned This Week (October 19-23)

- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.